

PROCEEDINGS

of the

American Society of Civil Engineers

INSTITUTED 1852

VOL. 56

FEBRUARY, 1930

No. 2

CONTENTS

| | |
|---|----------|
| Society Affairs..... | Page 27 |
| Applications for Admission and Transfer..... | Page 31 |
| Papers, Reports, Discussions and Memoirs..... | Page 199 |

This Society is not responsible for any statement made or opinion expressed
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Published by the American Society of Civil Engineers at its Headquarters, 33 West
Thirty-ninth Street, New York, N. Y., monthly except June and July. Edited by the Secretary,
under the direction of the Committee on Meetings and Publications. Reprints from this
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Matter, December 14, 1879, at the Post Office at New York, N. Y., under the Act of March 3,
1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of
October 3, 1917, authorized on July 5, 1918.

Printed in the United States.

Price \$1.00 per copy.

Subscription (if entered before January 1) \$8.00 per annum.

SOCIETY AFFAIRS

CONTENTS

Items of Interest:

| | PAGE |
|---|------|
| "This and That" at the 1930 Annual Meeting..... | 27 |
| Engineering Foundation, Inc..... | 28 |
| Appointments of Society Representatives..... | 30 |
| Engineering Lettering..... | 30 |
| President Hoover's Engineering Program..... | 30 |
| Report of Tellers on Ballot for Officers of the Society..... | 33 |
| Minutes of Meeting of the Executive Committee, December 16, 1929..... | 34 |

Local Sections:

| | |
|----------------------|----|
| Arizona | 34 |
| Central Ohio..... | 34 |
| Cincinnati..... | 34 |
| Cleveland..... | 34 |
| Colorado..... | 35 |
| Connecticut..... | 35 |
| Dayton..... | 35 |
| Florida..... | 35 |
| Georgia..... | 35 |
| Illinois..... | 35 |
| Kansas City..... | 36 |
| Lehigh Valley..... | 36 |
| Mid-South..... | 36 |
| New Mexico..... | 36 |
| New York..... | 36 |
| North Carolina..... | 37 |
| Northwestern..... | 37 |
| Oklahoma | 37 |
| Philadelphia..... | 37 |
| Portland (Ore.)..... | 37 |
| Porto Rico | 37 |
| San Diego..... | 37 |
| Syracuse | 37 |

| | |
|-------------------------------------|----|
| Engineering Societies Library | 38 |
|-------------------------------------|----|

| | |
|---|----|
| Current Civil Engineering Literature..... | 39 |
|---|----|

| | |
|-------------------------|----|
| Employment Service..... | 47 |
|-------------------------|----|

| | |
|------------------|----|
| Membership | 50 |
|------------------|----|

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROCEEDINGS

VOL. 56

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SOCIETY AFFAIRS

"THIS AND THAT" AT THE 1930 ANNUAL MEETING

In retrospect the Seventy-seventh Annual Meeting, January 15-18, 1930, is viewed with pleasure and great satisfaction by those who attended. A carefully trained mind would be inclined to grasp the whole picture as two distinct parts—the technical and the social. But there was so much of one mixed up with the other that it is hard to make a clear distinction for the purposes of analysis. The social part of the program was in fact thoroughly mixed in with the technical on Wednesday and Thursday, like a well-proportioned matrix binding the whole together.

Luncheon in the Building

The Luncheon, served in cafeteria style on the Fifth Floor, Wednesday noon, was a great success. Here hundreds of members were able to get in touch with old friends they had "spotted way down in front" during the morning session.

Although plenty of time was thought to have been allowed for this event, in the official schedule, it proved all too short. Groups of old cronies and new found friends gossiped until the call for the afternoon meeting.

President's Reception

This event is epic in the lives of many members who have attended for years. "Did you go to the Dinner Dance?" is a question that comes involuntarily, throughout the year, to the lips of all who discuss the Annual Meeting. The music was good and so was the composite humor of 600 or more guests.

In the brilliancy of a formal atmosphere with the beautiful setting of the immense Hotel Commodore Ball Room, the historic John Fritz Medal was bestowed on a celebrated Member, Ralph Modjeski. This ceremony, participated in by the other Engineering Societies, pro-

vided an occasion for addresses by Past-Presidents of the Mining and Metallurgical Engineers, the Electrical Engineers, and by Dean Dexter S. Kimball, Past-President of the Mechanical Engineers. Dean Kimball's address was of that inspiring nature that those who know him have learned to confidently expect.

Having assumed a proper dignity for such an auspicious occasion, the assembly then took on a tone of carefree sociability and the floors were cleared for a night of dancing. Meanwhile the reception to the distinguished guests was begun, to include not only the Medalist, but the new President and Honorary Members. The program said "Wednesday Evening;" it should have added: "and Thursday Morning."

The Ladies

Bent on outwitting the "Weather Man" at any cost, the ladies determined to carry out their Thursday program on the inside; in other words, to omit the usual sightseeing rides. What could be more attractive to a woman's heart than styles of dress? A fashion show, therefore, was in order. According to reports that leaked out from the strictly feminine atmosphere the gowns were gorgeous; the models, stunning; and the tea that followed, quite gossipy.

Special Program and Smoker

Regular attendants at the Annual Meeting have grown to expect an evening of "horse play" as typified by the Annual Convention of the Amalgamated Order of What Not Engineers. The program this year was much less "What Not" than in previous years. In fact it was quite dignified, albeit entertaining. The various speakers held up mirrors to the Civil Engineering Profession so that it could see itself in many lights. They

fully justified the advance pledge of the Committed and held their audience attentive and interested. The Smoker that followed on the Fifth Floor was sociable and friendly in every respect. A counter-attraction of moving pictures and music in the Auditorium claimed its large proportion of attention, thus in a pleasant manner relieving the usual crowding of this popular evening.

All-Day Excursion

Cruising about for an entire day in New York Harbor and the Hudson River; a band of fifty instruments; dancing; a delightful lunch; and endless chances for "visiting" old friends and making new ones—this sums up the leading features of the All-Day Excursion of Friday. After a trip to Kill van Kull Bridge, the boat proceeded up the North River to the site of the Hudson River Bridge.

Some of the party disembarked from the boat to study one of the anchorages at closer view. Many however preferred the comfort and intimacy of the quarters on board and stayed on the boat for the entire trip. The party dispersed about 4.00 P. M.

Advanced Engineering Thought

All this description of the personal phases of the Annual Meeting cannot hide the fact that predominantly it was an engineering gathering. The interest, even in the social conversations, was largely that of the office or the "job"—intimate problems of the engineer's everyday life.

In regard to the Technical Sessions, they shall speak for themselves, although at a later date. An abstract in the March *Proceedings* will present the text of the reports and the cogent points of the papers and discussions in condensed form. They will prove what can now simply be stated, that the 1930 Annual Meeting set a high standard of technical thought and up-to-date information. This was true alike of the Society and Technical Division Sessions and of the interesting structural exhibits.

Attendance

Statistics of attendance emphasize the interest shown. The records are about as follows: Total Registration, 1,500; Annual Meeting Session, 400; Highway Division, 35; Power Division, 110; Sanitary Engineering Division, 100; Construction Division, 150; Structural Division, 275;

Wednesday Lunch, 550; Dinner and Reception, 600; Smoker, 950; Bridge Excursion, 400; and Subway Inspection, 150.

As is invariably true, the official Committee of preparation acquitted itself admirably. Freedom from friction and delay, by the very lack of notice, only made the excellence of all the arrangements more pointed. In asking any member who attended, the answer would be the same—"It was a fine meeting."

ENGINEERING FOUNDATION, INC.

Its Organization and Functions

Engineering Foundation, Inc., successor to United Engineering Society by change of name only, is a non-profit, membership corporation, the charter of which gives it broad powers for the advancement of the engineering arts and sciences. It was set up by four National Societies, the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, which, therefore, came to be known as the Founder Societies.

Objections had been voiced from time to time to the name "United Engineering Society" and experience for many years had demonstrated that this name caused confusion, misconceptions, and other difficulties. The organization is not a "society" in the usual conception of the word. It is a corporation administering real estate, funds, and a library, for scientific, educational, and other purposes beneficial to the public through the Engineering Profession and the related sciences and industries. Its functions correspond closely to those of corporations of universities and of foundations for scientific, social, or economic research. It is truly a "foundation;" the name "Engineering Foundation" is appropriate. Therefore, with the approval of the Founder Societies its name was changed beginning January 1, 1930.

The corporate powers and privileges of the Foundation are vested in and exercised by a Board of twelve Trustees, three from each Founder Society, to which all departments are responsible. The Foundation has three departments: Engineering Societies Research Board; Engineering Societies Library Board; and Administrative Department. It is titular owner of Engineering Societies Building and the Trust Funds for the Library and the Research Board. The Foundation and its Departments are tax exempt.

Research

Engineering Societies Research Board was established in 1914 by the Founder Societies "for the furtherance of research in science and in engineering, or for the advancement in any other manner of the profession of engineering and the good of mankind." It was conceived by Ambrose Swasey, Hon. M. Am. Soc. C. E., of Cleveland, Ohio, and toward its endowment he has made three gifts intended to be the nucleus of a great "community trust" for engineers, to be contributed by many donors.

The Research Board has sixteen members, three representatives of each Founder Society, three members-at-large chosen by the Board of Trustees, and the President of the Foundation, *ex officio*. This Board has discretionary power in disposition of income from the Engineering Foundation Fund and other sources, but responsibility for administration of principal lies with the Board of Trustees.

Engineering Societies Research Board enjoys the co-operation of engineering societies, National Research Council, technical bureaus of the Government, universities, scientific associations, industries, bankers, and individual engineers. Funds contributed by others to projects in which it has participated have aggregated hundreds of thousands of dollars, and the services, facilities, and materials given in addition probably could not have been purchased for a much larger total. In the fifteen years of its existence, it has aided in establishing National Research Council and has co-operated in organizing the Highway Research Board, the Bureau of Welding and the Personnel Research Federation. It made possible the Fatigue of Metals Research at the University of Illinois; it assisted the Marine Piling Investigation. It is aiding its Founder Societies financially and otherwise in numerous researches, some of the larger projects being an investigation of arch dams for power development, irrigation, water supply, and flood control; researches in properties of steam, alloys of iron, and wire ropes.

Library

Engineering Society Library is a free public library. It contains 125 000 books and pamphlets and 6 000 maps. It receives regularly from all over the world, 1 700 technical periodicals, in 18 languages: Chinese, Czech, Danish, Dutch, English, French, German, Hungarian, Icelandic, Italian, Japanese, Norwegian,

Polish, Portuguese, Roumanian, Russian, Spanish, and Swedish. A board of twenty-one members manages the Library: four designated by each Founder Society, the Secretary of each Society, and the Director of the Library.

The Library maintains staffs of technically trained searchers and translators, as well as reference assistants. It makes photoprints of any material in its collection. A card service keeps subscribers informed of articles in periodicals on subjects in which they may be interested. It has special arrangements for lending books. By these means the Library serves thousands, near and far. For some services moderate charges are necessary. It has users in every State and Territory and in many foreign countries. It is supplemented by the Engineering Index Service of the American Society of Mechanical Engineers.

Administration

The Administrative Department manages Engineering Societies Building and all Trust Funds. This building, headquarters for more than a score of engineering organizations, almost all National in scope, is situated in the midst of New York's newly developed mid-Manhattan business, hotel, theatre, and club district, equi-distant from the two great railroad passenger terminals. In the building, besides quarters of societies, are an Entrance Hall, or Lounge; the Engineering Auditorium, seating 900; three Assembly Rooms, seating 90, 225, and 500; Committee Rooms; and Engineering Societies Library. The Founder Societies have equal interests in the ownership, occupancy, and administration of the building. The Society of Automotive Engineers also occupies an entire floor. These five large societies use nearly the whole space of the eight office floors. The building houses also Engineering Foundation, Inc., Engineering Societies Employment Service, American Standards Association, Division of Engineering and Industrial Research of National Research Council, and Personnel Research Federation.

The funds administered are: Engineering Foundation Fund; Library Endowment Fund; Henry R. Towne Engineering Fund; Edward Dean Adams Fund; John Fritz Medal Fund; and Depreciation and Renewal Fund (for Engineering Societies Building).

Engineering Foundation, Inc., has power to establish other departments, with the approval of its Founder Societies, and to accept additional funds.

APPOINTMENTS OF SOCIETY REPRESENTATIVES

Among the recent appointments to represent the Society may be noted the following:

Board of Trustees of United Engineering Society: Frank E. Winsor, M. Am. Soc. C. E.

Engineering Foundation Board: Otis E. Hovey, M. Am. Soc. C. E., and William H. Burr, M. Am. Soc. C. E.

Library Board of Engineering Societies Library: F. H. Constant, M. Am. Soc. C. E.

ENGINEERING LETTERING

In the present trend toward standardization, many of the pet habits of engineers are receiving attention—and revision. One of these is the lettering on engineering drawings.

This phase of technical work has always been considered rather intimate or personal just as much as handwriting and for about the same reason. Now, however, comes a committee with responsible backing to study the matter, representing organizations, such as the American Standards Association, the Society for the Promotion of Engineering Education, and the American Society of Mechanical Engineers.

These studies have been extensive and their findings are specific. Apparently no civil engineers were included on the Committee and hence the recommendations probably reflect the views of industry and manufacture (rather than of construction men). However, in so far as the findings are general, they will be of considerable value even to civil engineers, and they are therefore quoted:

"The standardization of lettering in the preparation of drawings is a section of the National Standardization of Drafting Practice to obtain more uniform methods in different organizations and familiarize the student in the class-room with the methods he will encounter when he enters the field for which his training has prepared him.

"At one time, it was the general opinion that lettering should be sloped as in script, thereby combining uniformity and speed. A number of letter forms have been promulgated but in apparent contradiction to theory, the vertical letter has been adopted by many of the larger manufacturers as being the type of lettering that tracers can make legibly and uniformly. As in script, sloped letters

invariably carry personal characteristics of the individual; this feature is not so noticeable where vertical letters are used. It is also noticeable that vertical lettering produces work which is more legible in the blueprints.

"In a questionnaire recently sent to the industries and educational institutions it developed that the industries are in favor of the Vertical Lettering and the Educational Institutions the Inclined Letters.

"In making recommendations for a universal type of lettering, it seems desirable to be governed by the group which uses it in practice.

"A.—Vertical Capitals, Vertical Caps and Small Caps and Vertical Lower Case Letters are recommended with a slight preference for Vertical Capitals and Vertical Caps and Small Caps in all Titles, Sub-Titles, Notes and Part Lists.

"B.—It is not desirable to grade the size of lettering with the size of drawing except when a reduced photographic reproduction of the drawing is to be made. In other work the size of the lettering should be such as will produce legible prints. The size is governed by the nature of the original, if on tracing cloth or tracing paper and in Ink or Pencil.

"C.—When machine printing is used, as in the case of titles, standard notes, name of manufacturer, etc., the Gothic lettering should be used.

"D.—The use of lettering guides or templates, styles of pens, etc., are at the discretion of the user to meet his particular situation but should be selected to obtain results in keeping with the recommended lettering practice."

In addition, the Committee submitted a sample sheet using entirely vertical Gothic lettering. As this is of the type frequently obtained by use of lettering stencils it need not be reproduced here.

PRESIDENT HOOVER'S ENGINEERING PROGRAM

A Presidential message to Congress is always a matter of interest and comment by the public. All the more is this true of a President's first message, such as that submitted by Mr. Hoover last December. Not only was there expectation that his analysis of conditions and needs the country over would be thought-

ful and accurate, but that he would bring a trained engineering perception to bear on all governmental problems especially those involving business or construction.

An Engineer's Outlook

How well this forecast was visualized is shown by a single element in his speech. In length, the message was a moderate one—about 12 000 words or, say, 20 pages of *Proceedings*. Of this amount, however, fully 25% dealt directly with specific engineering projects and needs.

It was a matter of wide and immediate comment that the President's remarks were at once simple and direct. Generalities gave place to specific statements and recommendations. The engineer's intuition penetrated the Presidential atmosphere and illuminated the many phases of National business enterprise. Judging from press comments the general reaction was most favorable and enhanced the esteem of the President and the Engineering Profession.

As Mr. Hoover's views are bound to exercise a deep effect on Administration policies and as these policies have great potentialities to all engineers, important extracts are here reprinted, even at the cost of repetition. If members have not already studied this message, these excerpts will give an idea of what the Hoover presidential tenure of office forecasts in the way of Government engineering advances.

Waterways and Flood Control

"The development of inland waterways has received new impulse from the completion during this year of the canalization of the Ohio to a uniform 9-feet depth. The development of the other segments of the Mississippi system should be expedited, and with this in view, I am recommending an increase in appropriations for rivers and harbors from \$50 000 000 to \$55 000 000 per annum which, together with about \$4 000 000 per annum released by completion of the Ohio, should make available, after providing for other river and harbor works, a sum of from \$25 000 000 to \$30 000 000 per annum for the Mississippi system and thus bring it to early completion.

"Conflict of opinion which has arisen over the proposed floodway from the Arkansas River to the Gulf of Mexico via the Atchafalaya River has led me to withhold construction upon this portion of the Mississippi flood control plan until it could be again reviewed by the engineers for any further recommendation to Congress. The other portions of the pro-

ject are being vigorously prosecuted and I have recommended an increase in appropriations for this from \$30 000 000 of the present year to \$35 000 000 during the next fiscal year.

"Expansion of our intracoastal waterways to effective barge depths is well warranted. We are awaiting the action of Canada upon the St. Lawrence waterway project.

Highways

"There are over 3 000 000 miles of legally established highways in the United States, of which about 10 per cent. are included in the State highway systems, the remainder being county and other local roads. About 626 000 miles have been improved with some type of surfacing, comprising some 63 per cent. of the State highway systems and 16 per cent. of the local roads. Of the improved roads about 102 000 miles are hard surfaced, comprising about 22 per cent. of the State highway systems and about 8 per cent. of the local roads.

"While proper planning should materially reduce the listed mileage of public roads, particularly in the agricultural districts, and turn these roads back to useful purposes, it is evident that road construction must be a long-continued program. Progress in improvement is about 50 000 miles of all types per annum, of which some 12 000 miles are of the more durable types. The total expenditures of Federal, State, and local governments last year for construction and maintenance assumed the huge total of \$1 660 000 000.

"Federal aid in the construction of the highway systems in conjunction with the States has proved to be beneficial and stimulating. We must ultimately give consideration to the increase of our contribution to these systems particularly with a view to stimulating the improvement of farm-to-market roads.

Federal Power Commission

"I recommend that authority be given for the appointment of full time commissioners to the Federal Power Commission and that the authority of the commission be extended to certain phases of power regulation.

Muscle Shoals

"It is most desirable that this question be disposed of. * * * such parts of these plants as would be useful and the revenues from the remainder, should be dedicated for all time to the farmers of the United States for investigation and

experimentation on a commercial scale in agricultural chemistry. * * * I do not favor the operation by the Government of either power or manufacturing business except as an unavoidable product of some other major public purpose.

Boulder Dam

"The Secretary of the Interior is making satisfactory progress in negotiation of the very complex contracts required for the sale of the power to be generated at this project. These contracts must assure the return of all Government outlays upon the project. I recommend that the necessary funds be appropriated for the initiation of this work as soon as the contracts are in the hands of Congress.

Conservation

"I recommend that Congress authorize a moderate sum to defray the expense of a Commission on Conservation of Public Domain.

Governmental Re-Organization

"This subject has been under consideration for over 20 years. It was promised by both political parties in the recent campaign. It has been repeatedly examined by committees and commissions—congressional, executive, and voluntary. The conclusions of these investigations have been unanimous that re-organization is a necessity of sound administration, of economy, of more effective governmental policies, and of relief to the citizen from unnecessary harassment in his relations with a multitude of scattered governmental agencies. But the presentation of any specific plan at once enlivens opposition from every official whose authority may be curtailed or who fears his position is emperilled by such a result; of bureaus and departments which wish to maintain their authority and activities; of citizens and their organizations who are selfishly interested or who are inspired by fear that their favorite bureau may in a new setting be less subject to their influence or more subject to some other influence.

"It seems to me that the essential principles of re-organization are two in

number. First, all administrative activities of the same major purpose should be placed in groups under single-headed responsibility; second, all executive and administrative functions should be separated from boards and commissions and placed under individual responsibility, while quasi-legislative and quasi-judicial and broadly advisory functions should be removed from individual authority and assigned to boards and commissions. Indeed, these are the fundamental principles upon which the Government was founded, and they are the principles which have been adhered to in the whole development of our business structure, and they are the distillation of the common sense of generations.

"For instance, the conservation of National resources is spread among eight agencies in five departments. They suffer from conflict and overlap. There is no proper development and adherence to broad national policies and no central point where the searchlight of public opinion may concentrate itself. These functions should be grouped under the direction of some such official as an assistant secretary of conservation. The particular department or Cabinet officer under which such a group should be placed is of secondary importance to the need of concentration. The same may be said of educational services, of merchant marine aids, of public works, of public health, of veterans' services, and many others, the component parts of which are widely scattered in the various departments and independent agencies. It is desirable that we first have experience with these different groups in action before we create new departments. These may be necessary later on.

"With this background of all previous experience I can see no hope for the development of sound re-organization of the Government unless Congress be willing to delegate its authority over the problem (subject of defined principles) to the Executive, who should act upon approval of a joint committee of Congress or with the reservation of power of revision by Congress within some limited period adequate for its consideration."

Report of Tellers on Ballot for Officers of the Society

"33 West 39th Street, New York, N. Y.
January 8, 1930

"To THE SEVENTY-SEVENTH ANNUAL MEETING

AMERICAN SOCIETY OF CIVIL ENGINEERS:

"The Tellers appointed to canvass the Ballot for Officers of the Society for 1930 report as follows:

"Total number of ballots received..... 4 198

"Deduct:

| | |
|--|----|
| Ballots from members in arrears of dues..... | 22 |
| Ballots from non-corporate members..... | 1 |
| Ballots with printed signature..... | 5 |
| Ballots with illegible signature..... | 2 |
| Ballots not signed..... | 68 |

"Total not entitled to vote..... 98

"Ballots canvassed 4 100

"Void ballots..... 0

"Ballots counted..... 4 100

"For President:

| | |
|---------------------------|-------|
| JOHN FRANCIS COLEMAN..... | 4 091 |
| Scattering | 1 |
| Blank | 8 |

"For Vice-Presidents:

| | |
|----------------------------------|-------|
| Zone I.—FRANK EDWARD WINSOR..... | 4 034 |
| Scattering | 1 |
| Blank | 65 |
| Zone IV.—JOSEPH MILTON HOWE..... | 4 050 |
| Scattering | 3 |
| Blank | 47 |

"For Directors:

| | |
|--------------------------------------|-------|
| District No. 1 (Two to be elected).— | |
| OLE SINGSTAD..... | 4 037 |
| JOHN RODOLPH SLATTERY..... | 4 031 |
| Scattering | 6 |
| Blank for one Director..... | 34 |
| Blank for two Directors..... | 46 |

| | |
|---|-------|
| "District No. 4.—CHARLES HENRY STEVENS..... | 4 049 |
| Scattering | 1 |
| Blank | 50 |

| | |
|--|-------|
| "District No. 11.—FRANKLIN THOMAS..... | 4 056 |
| Scattering | 2 |
| Blank | 42 |

| | |
|--|-------|
| "District No. 14.—DON ALEXANDER MACCREA..... | 4 044 |
| Scattering | 8 |
| Blank | 48 |

| | |
|---|-------|
| "District No. 15.—ALLAN THEODORE DUSENBURY..... | 4 053 |
| Scattering | 3 |
| Blank | 44 |

"Respectfully submitted,

"WALTER E. SPEAR, *Chairman*,

| | |
|----------------------|-----------------------|
| A. LAWRIE KURTZ, | CHARLES L. SPAULDING, |
| F. B. MARSH, | JACOB MECHANIC, |
| CHARLES M. MADDEN, | J. A. LENECEK, |
| W. D. AIKEN, | S. E. COOMBS, |
| JAMES H. RICHARDSON, | CHARLES D. THOMAS, |
| | D. W. HOWES, |

"*Tellers.*"

Meeting of Executive Committee

This is an abstract of the notes of the Secretary and subject to approval by the Executive Committee at its next meeting.

The Executive Committee met at Society Headquarters on December 16, 1929; President Anson Marston in the chair: George T. Seabury, Secretary; and present, also, Messrs. Bush, Eddy, Ray, and Treasurer Hovey.

Approval of Minutes

The minutes of the last meeting of this Committee held on April 22, 1929, were approved, as adopted by the Board.

Proposed Budget for 1930

Consideration was given to the Budget for 1930 and to many other items of Society business in advance of the meeting of the Board of Direction at the time of the Annual Meeting.

Local Sections*

Arizona.—November 15, 1929. The Annual Meeting of the Section was held in the Board of Governors' Office of the Salt River Water Users Association, at Phoenix. Following the business meeting, the officers for 1930 were elected as follows: President, W. W. Lane; Vice-Presidents, W. E. Dickinson and R. G. Baker; and Secretary-Treasurer E. V. Miller. Papers by R. G. Baker, Engineer for Salt River Valley Water Users Association, on "Stewart Mountain Power Development" and by J. A. Fraps, Engineer on State Dam Supervision and Control, on the "Carl Pleasant Dam Situation," were presented by the authors. Attendance 11.

Central Ohio.—December 19, 1929. At the Annual Meeting of the Section held at the Chittenden Hotel in Columbus, Ohio, the following officers were elected for 1929-30: President, Orris Bonney; First Vice-President, C. W. Ozias; Second Vice-President, R. A. Allton; and Secretary-Treasurer, R. T. Regester. A report on suggested topics for the Cleveland meeting of the Society was read by Mr. E. G. Bradbury, after which Professor Clyde T. Morris gave an informal discussion of the experimental work at the Engineering Experiment Station, Ohio State University, on "Flow of Concrete". Attendance 21.

Cincinnati.—December 9, 1929. A meeting of the Section was held at the Engineers' Club. Professor Clyde T. Morris, of Ohio State University, spoke on "Research Activities of the American Society of Civil Engineers." The following officers have been elected for 1930: President, H. W. Streeter; Vice-President, J. E. Root; and Secretary-Treasurer, Clifford N. Miller. Attendance 23.

Cleveland.—The following officers of the Section have been elected for the ensuing year: President, George B. Sowers; Vice-President, L. C. Sabin; and Secretary-Treasurer, William L. Havens.

* For list of Local Section Officers, Rules, etc., see 1929 Year Book, p. 46.

Colorado.—The following officers of the Section have been elected for 1930: President, Ivan E. Houk; Vice-President, Norman W. Funk; and Secretary-Treasurer, Lyman F. Copeland.

Connecticut.—May 15, 1929. This was a dinner meeting held at the Wall Tea Room, New Haven. The members of the Yale Student Chapter in the Senior Class were the guests of the Section. Secretary Seabury addressed the meeting on the work and aims of the Society, and each member of the Section present introduced himself and detailed briefly his particular field of engineering. Attendance 35.

December 6, 1929. This meeting of the Section was held at the Graduates Club, New Haven. Mr. J. P. Wadhams gave an interesting account of his attendance as delegate from the Section at the Annual Meeting of the New England Council at Boston, Mass., on November 21 and 22, 1929. The report of the Special Committee of the Society on Charges and Methods of Making Charges for Professional Services was discussed, and a Committee composed of Messrs. Charles Rufus Harte, C. J. Bennett, and H. R. Buck was appointed to review the report and prepare the views of the Section on it for presentation to the Committee. Attendance 18.

The following officers of the Section have been elected for 1929-30: President, Charles J. Bennett; Vice-President, Carlton T. Bishop; and Secretary-Treasurer, Clarence T. Blair.

Dayton.—December 9, 1929. This noon-day meeting was held at the Engineers Club and was the Annual Meeting of the Section. The following officers were elected for 1930: President, Nelson J. Bell; First Vice-President, W. W. Morehouse; Second Vice-President, J. W. Graham; and Secretary-Treasurer, C. S. Bennett. Following the business meeting, Charlton Putnam, Chairman of the City Plan Board, presented a brief description of the proposed civic center plan for Dayton. Attendance 30.

December 17, 1929. This was a special dinner meeting held at the Engineers Club in honor of Director Clyde T. Morris, of District No. 9. Professor Morris addressed the meeting on "Wind Pressure Studies on High Buildings". Attendance 20.

Florida.—December 20, 1929. At the Annual Meeting of the Section held in Jacksonville, the following officers were elected for 1930: President, Gilbert A. Youngberg; and Secretary-Treasurer, Ralph E. Spaulding.

Georgia.—January 6, 1930. This was a luncheon meeting of the Section held at the Athletic Club in Atlanta. Business matters of local importance were transacted, after which John W. Stokes, District Field Manager of the United States Chamber of Commerce, spoke on the numerous activities of that body. Mr. Stokes described the Chamber as a "Clearing house for business information" and discussed in detail the work of its various departments. Attendance 24.

Illinois.—November 26, 1929. This was a joint meeting with the Chicago Engineers Club and was known as "The Special Thanksgiving Turkey Luncheon". After the luncheon, John F. Cushing, President, the Great

Lakes Dredging and Dock Company, gave an illustrated and interesting address on "Construction Features of the Chicago River Straightening Projects". Attendance 173.

December 16, 1929. The following officers for 1930 were elected: President, Charles A. Morse; Vice-President, Walter A. Rogers; and Secretary, Fred G. Gordon. The meeting was then turned over to Paul Hansen, Chairman of the Special Committee of the Section on Charges and Method of Making Charges for Professional Services, who presented a second informal report supplementing the one submitted at the November meeting. Following the reading of the report the subject was discussed by a number of members present. Attendance 31.

Kansas City.—The following officers of the Section have been elected for the ensuing year: President, Arthur C. Everham; Vice-Presidents, A. E. Harvey and Henry C. Tammen; Secretary-Treasurer, J. Fred Brown; and Board of Directors, Arthur C. Everham, Charles A. Haskins, A. E. Harvey, Henry C. Tammen, and J. Fred Brown.

Lehigh Valley.—The following officers have been elected for 1929-30: President, William S. Lohr; and Secretary-Treasurer, M. O. Fuller.

Mid-South.—The following officers of the Section have been elected for the ensuing year: President, L. L. Hidinger; Vice-Presidents, J. H. Dorroh, J. H. Haylow, Charles W. Okey, N. B. Garver, J. H. C. Lee, and F. V. Ragsdale; and Secretary-Treasurer, R. E. Warden.

New Mexico.—October 7, 1929. At this meeting of the Section the following officers were elected for 1929-30: President J. L. Burkholder; First Vice-President, W. C. Davidson; Second Vice-President, Paul Fox; Director, Neil Hanson; and Secretary-Treasurer, A. Diefendorf.

New York.—October 16, 1929. This meeting was devoted to an illustrated talk on South American railway construction by Fred Lavis, President of the International Railways of Central America.

November 20, 1929. This was a joint meeting of the Section and the American Welding Society. The subject of the evening was "Structural Welding" and the principal speakers were Frank P. McKibben, Consulting Engineer to the General Electric Company, and A. G. Leake, Engineer and Contractor, of Bridgeport, Conn., who has had a wide practical experience in structural welding. Interest in the subject was evident in the attendance which exceeded 500.

December 18, 1929. Admiral F. R. Harris, Managing Engineer on the project, was the principal speaker at a meeting at which the engineering and construction features of the new Todd Graving Dock in Brooklyn were described. Other speakers were engineers connected with the design and construction, namely, James A. Hargan, Daniel A. Hughes, H. L. Muchemore, and A. F. Lipari.

Preceding the November and December meetings a special meeting for Juniors was held, one of the lantern lectures prepared at the Society's Headquarters being used as the subject of each meeting. Both meetings were so

well attended that the practice of holding them is to be continued throughout the remainder of the season.

The following officers of the Section have been elected for 1929-30: President, Charles A. Mead; and Secretary, V. T. Boughton.

North Carolina.—The following officers of the Section have been elected for the ensuing year: President, William E. Pratt; Vice-President, John D. Waldrop; and Secretary-Treasurer, Thorndike Saville.

Northwestern.—December 18, 1929. At the business meeting of the Section held at the St. Paul (Minn.) Athletic Club, a resolution was endorsed relative to the conservation of natural resources. A dinner meeting followed at which the speaker of the evening was Mr. William B. Stout who chose as his subject "Aviation as an Opportunity". A varied discussion of the subject concluded the meeting. The attendance at the dinner was 62.

Oklahoma.—December 13, 1929. The following officers for 1930 were elected: President, E. R. Stapley; First Vice-President, V. H. Cochrane; Second Vice-President, T. P. Clonts; and Secretary-Treasurer, L. M. Bush. Attendance 14.

Philadelphia.—The following officers of the Section have been elected for 1930: President, Robert Farnham; First Vice-President, James W. Follin; Second Vice-President, William R. Scanlin; Secretary-Treasurer George H. Shaw; and Directors, Harry N. Freeburn, Beale M. Smucker, Charles S. Shaughnessy, and Sanford W. Savin.

December 19, 1929. At the dinner meeting of the Section held at the Engineers Club, Jacob L. Bauer, State Highway Engineer of New Jersey, delivered an address on the "Outstanding Features of State Highway Planning and Construction in New Jersey". The paper was illustrated with lantern slides and motion pictures. Following Mr. Bauer's address, the subject was discussed by John Neeson, Chief of the Bureau of Engineering and Surveys of the City of Philadelphia. Messrs. Henry J. Sherman and Charles H. Stevens also took part in the discussion. The attendance at the dinner was 92 and at the meeting, 125.

Portland (Ore.).—The following officers of the Section have been elected for 1930: President, F. R. Schanck; First Vice-President, O. E. Stanley; Second Vice-President, J. W. Cunningham; Secretary, C. F. Thomas; and Treasurer, H. M. Chadwick.

Porto Rico.—December 10, 1929. This was the Annual Meeting of the Section held at Guineo Dam through an invitation extended by Mr. Antonio Lucchetti. Two papers were read at this time, one in relation to irrigation and the other on the subject of breakwaters.

San Diego.—December 19, 1929. At the Annual Meeting of the Section the following officers were elected for 1930: President, Walter Wilson Crosby; Vice-President, Hans William Jorgensen; and Secretary-Treasurer, Harold Aker Noble.

Syracuse.—The following officers of the Section have been elected for the ensuing year: President, Clinton S. Herrick and Secretary-Treasurer, Herbert N. Cole.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 73 and 74 of the Year Book for 1929.

Book Notices*

(December 2 to December 31, 1929)

Applied Aerial Photography. By Ashley C. McKinley. N. Y., John Wiley & Sons, 1929. 341 pp., illus., diagrams, 9 x 6 in., cloth. \$5.00.

The instruments used and the taking and finishing of photographs are described, and the methods of mapping with or from photographs and of oblique aerial mapping are explained.

Basic Principles of Concrete Making. By Franklin R. McMillan. N. Y., McGraw-Hill Book Co., 1929. 99 pp., illus., graphs, tab., 9 x 6 in., cloth. \$2.00.

The book is intended to give the experienced engineer a clear understanding of the principles that control the quality of concrete, and their application to a particular set of conditions.

Engineering Mechanics, Pt. 1: Simple Statics, Dynamics of Translatory Motion, Dynamics of Rotatory Motion. By William S. Franklin and Zenas R. Bliss. Lancaster, Pa., Franklin & Charles, 1929. 287 pp., diagrams, tab., 9 x 6 in., cloth. \$2.75.

This textbook, based especially on the views of Kelvin, Tait, and Raleigh, aims to focus attention on the more fundamental aspects of the subject.

Report Writing. By Carl G. Gaum and Harold F. Graves. N. Y., Prentice-Hall, 1929. 319 pp., 9 x 6 in., cloth. \$5.00.

Principles of composition and rhetoric are here applied in a course of practical instruction which begins with the writing of business letters and advances progressively to complex forms. Specimen outlines and reports form a second part of the text.

Additions to the Reading Room

Highway Location and Surveying. By W. W. Crosby and George E. Goodwin, Members, Am. Soc. C. E. Chic., Gillette Pub. Co.; Lond., E. & F. N. Spon, Ltd., 1928. 18 + 398 pp., illus., diagrams, tab., 8½ x 5½ in., cloth. (Gift of Mr. Crosby.)

The aim has been to indicate some of the underlying structural defects generally found in highway systems. The text is divided into three parts, consisting of notes on (I) Highway Location; (II) Mountain Highway Location; and (III) Highway Surveying. Appendices include Forms and Instructions used by various States, and a bibliography.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by the publishers.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

| Abbreviated References. | Publication. | Place. |
|-------------------------|--|---------------|
| Am. C. Inst. | <i>American Concrete Institute, Proceedings</i> (Y.) | Detroit |
| A. I. E. E. | <i>American Institute of Electrical Engineers Journal</i> (M.) | New York |
| A. R. E. A. | <i>American Railway Engineering Association, Proceedings</i> (Y.) | Chicago |
| A. S. T. M. | <i>American Society for Testing Materials, Proceedings</i> (Y.) | Philadelphia |
| Am. Soc. C. E. | <i>American Society of Civil Engineers, Proceedings</i> (M.) | New York |
| Am. Soc. Mun. Impvts. | <i>American Society for Municipal Improvements, Proceedings</i> (Y.) | New York |
| Am. W. W. Assoc. | <i>American Water Works Association, Journal</i> (M.) | Baltimore |
| Am. Wood Prs. Assoc. | <i>American Wood Preservers Association, Proceedings</i> (Y.) | Chicago |
| Ann. P. et C. | <i>Annales des Ponts et Chaussées</i> (Bi-M.) | Paris |
| Ann. T. P. Belg. | <i>Annales des Travaux Publics de Belgique</i> (Bi-M.) | Brussels |
| Assoc. Ing. Gand. | <i>Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand</i> (Q.) | Ghent |
| Bost. Soc. C. E. | <i>Boston Society of Civil Engineers, Journal</i> (M.) | Boston |
| Can. Engr. | <i>Canadian Engineer</i> (W.) | Toronto |
| City Plan. | <i>American City Planning Institute</i> (Q.) | Boston |
| Comwith. Engr. | <i>Commonwealth Engineer</i> (M.) | Melbourne |
| Conc. | <i>Concrete</i> (M.) | Chicago |
| Cornell C. E. | <i>Cornell Civil Engineer</i> (M.) | Ithaca |
| Dock & Harbour | <i>Dock and Harbour Authority</i> (M.) | London |
| Eng. | <i>Engineering</i> (W.) | London |
| Eng. & Contr. | <i>Engineering and Contracting</i> (M.) | Chicago |
| Eng. Inst. Can. | <i>Engineering Institute of Canada, Journal</i> (M.) | Montreal |
| Eng. N. R. | <i>Engineering News-Record</i> (W.) | New York |
| Engr. Soc. W. Pa. | <i>Engineers' Society of Western Pennsylvania, Journal</i> (M.) | Pittsburgh |
| Engr. | <i>Engineer</i> (W.) | London |
| Engrs. & Eng. | <i>Engineers and Engineering, Engineers' Club of Philadelphia</i> (M.) | Philadelphia |
| Gas und Wasser. | <i>Gas und Wasserfach</i> (M.) | Munich |
| Gen. Civ. | <i>Le Génie Civil</i> (W.) | Paris |
| Gesund. Ing. | <i>Gesundheits Ingénieur</i> (M.) | Munich |
| Hydraulic Eng. | <i>Hydraulic Engineering</i> (M.) | Los Angeles |
| Inst. C. E. | <i>Institution of Civil Engineers Minutes of Proceedings</i> (Q.) | London |
| Inst. Mun. & Co. Engrs. | <i>Institution of Municipal and County Engineers, Journal</i> (W.) | London |
| Int. Ry. Cong. Assoc. | <i>International Railway Congress Association, Bulletin</i> (M.) | Brussels |
| Land. Arch. | <i>Landscape Architecture</i> (Q.) | Boston |
| Mech. Eng. | <i>Mechanical Engineering</i> (M.), <i>Journal of the American Society of Mechanical Engineers</i> | New York |
| Mil. Engr. | <i>Military Engineer</i> (Bi-M.) | Washington |
| Min. & Metal. | <i>Mining and Metallurgy</i> (M.), <i>American Institute of Mining Engineers</i> | New York |
| N. E. W. W. Assoc. | <i>New England Water Works Association, Journal</i> (Q.) | Boston |
| N. Y. R. R. Club. | <i>New York Railroad Club, Proceedings</i> (M.) | Brooklyn |
| Oest. Ing. Arch. Ver. | <i>Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift</i> (F.) | Vienna |
| Power | <i>Power</i> (W.) | New York |
| Public W. | <i>Public Works</i> (M.) | New York |
| Rev. Gen. | <i>Revue Générale des Chemins de Fer</i> (M.) | Paris |
| Ry. Age. | <i>Railway Age</i> (W.) | New York |
| Ry. Eng. & Maint. | <i>Railway Engineering and Maintenance</i> (M.) | Chicago |
| R. & S. | <i>Roads and Streets</i> (M.) | Chicago |
| Schw. Bauz. | <i>Schweizerische Bauzeitung</i> (W.) | Zurich |
| Scl. Am. | <i>Scientific American</i> (M.) | New York |
| Soc. Ing. Civ. Fr. | <i>Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus</i> (Q.) | Paris |
| Tech. Gemeln. | <i>Technisches Gemeindeblatt</i> (F.) | Berlin |
| Ver. deu. Ing. | <i>Verein deutscher Ingenieure, Zeitschrift</i> (W.) | Berlin |
| W. W. & Sewer. | <i>Waterworks and Sewerage</i> (M.) | Chicago |
| West. Constr. N. | <i>Western Construction News</i> (F.) | San Francisco |
| West. Ry. Club. | <i>Western Railway Club, Proceedings</i> (M.) | Chicago |
| West. Soc. Engrs. | <i>Western Society of Engineers, Journal</i> (M.) | Chicago |
| Zeit. Bau. | <i>Zeitschrift für Bauwesen</i> (Q.) | Berlin |
| Z. d. Bauver. | <i>Zentralblatt der Bauverwaltung</i> (W.) | Berlin |

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences

a. Processes of Calculation

2. Graphical and Nomographical Processes

The Graphical Solution of a Correlation Table. Weston S. Evans. Am. Soc. C. E. Dec., '29. Neuere Nomogramme für den Wasserbau.* (New Nomograms for Hydraulic Engineering.) Paul Leybold. Z. d. Bauver. Nov. 6, '29.

3. Stresses and Strains

Über die Anstrengungshypothesen.* (On the Strain Hypotheses.) Vladimir v. Burzynski. Schw. Bauz. Nov. 23, '29.

B. Applied Mechanics

a. Mechanics of Solids (Strength of Materials)

3. Jointed Systems

Elastic Equilibrium in the Theory of Structures. Discussion: H. S. Richmond. Am. Soc. C. E. Dec., '29.

4. Riveted Systems

Le Flambeament Composé dans les Charpentes Légères.* (Compound Buckling in Light Framework.) P. Caufourier. Gen. Civ. Nov. 16, '29.

Nouveau Procédé de Calcul des Portiques à Etages par la Méthode Dite des Moments Statiques Fictifs.* (New Method of Calculating Step-Frameworks by the Method of Fictitious Static Moments.) J. Rieger. Gen. Civ. Nov. 23, '29.

6. Heterogeneous Solids (Reinforced Materials)

Das Tragmetzblech—ein Vorläufer des Istegeleins.* (Expanded Metal Sheets—A Forerunner of Istege Reinforcing Iron.) Leopold Herzka. Oest. Ing. Arch. Ver. Nov. 22, '29.

7. Pulverulent Masses

Research in Soil Mechanics at the Massachusetts Institute of Technology.* Glennon Gilboy. Discussion: C. H. Eiffert. (Paper read before Struc. Div.) Am. Soc. C. E. Dec., '29.

b. Hydraulics

1. Processes of Measurement

Effect of Turbulence on the Registration of Current Meters. David L. Yarnell, and Floyd A. Nagler. Am. Soc. C. E. Dec., '29.

2. Physical Hydraulics

Mittlere Querschnittsgeschwindigkeit natürlicher Wasserläufe.* (Average Cross-Sectional Velocity of Natural Water Courses.) J. Rapp. Z. d. Bauver. Nov. 27, '29.

3. Industrial Hydraulics

Recent Advances in the Utilization of Low-Head Water Powers.* Sven Svennengson and E. Brown. Eng. Inst. Can. Nov., '29.

The Grimsel Hydro-Electric Power Scheme.* C. MacLeod Ross. Engr. Nov. 22, '29.

Niagara Power. Discussion: R. D. Johnson and Glen E. Edgerton. Am. Soc. C. E. Dec., '29. Kaplan Turbines at the Ryburg-Schwarzwald Plant on the Upper Rhine. D. Thoma. (Paper read before Power Div.) Am. Soc. C. E. Dec., '29.

Island Falls Hydro Power Development.* F. S. Small. Can. Engr. Dec. 3, '29.

Second Great Power Development on Saguenay River Begun at Chute-a-Caron.* Eng. N. R. Dec. 5, '29.

L'Usine Hydro-Electrique d'Ardnacrusha sur le Shannon, et l'électrification de l'Irlande.* (The Ardnacrusha Hydro-Electric Plant on the Shannon, and the Electrification of Ireland.) J. Effertz. Gen. Civ. Nov. 9, '29.

4. Dams

Symmetry of Design and General Economics in Construction.* James G. Tripp. (Paper read before Sacramento Sec., Am. Soc. C. E.) West. Constr. N. Nov. 10, '29.

Collapse of Littlefield Dam.* J. A. Fraps. West. Constr. N. Nov. 25, '29.

Calaveras Flood Control Dam.* K. L. Parker. West. Constr. N. Nov. 25, '29.

Tests on Model Dam Determine Baffle Weir Design.* C. E. Blee. Eng. N. R. Dec. 12, '29.

Calderwood High Arch Dam Designed with Deep Cushion Pool to Receive Overflow.* Eng. N. R. Dec. 19, '29.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, Gravel, etc.

Field Control of Concrete Mixes.* T. H. F. Nevins. Comwlth. Engr. Oct., '29.

Relative Economy of Concrete Mixes and Practical Tests for Concrete Aggregate. (Paper read before Am. Ry. Bridge & Bldg. Assoc.) Ry. Eng. & Main. Nov., '29.

A Mathematical Method of Proportioning.* Joseph A. Klits. Conc. Nov., '29.

Fire Resisting Properties of Concrete. S. H. Ingberg. (Paper read before Am. Soc. Test. Mat.) Eng. & Contr. Nov., '29.

La Confection des Bétons Employés dans les Travaux d'Exécution de l'Ecluse Maritime du Kruischaans à Anvers.* (The Preparation of the Concrete Used in Constructing the Sea Locks of the Kruischaans at Anvers.) E.-C. Missotten. Ann. T. P. Belg. Oct., '29.

b. Metals

Hochwertige Baustähle für den Grossstahlbau.* (High-Grade Structural Steels for the Construction of Large Steel Buildings.) E. H. Schulz and H. Buchholz. Ver. deu. Ing. Nov. 2, '29.

Der Einfluss von Poren auf die Festigkeit von Spritzguss.* (The Effect of Pores on the Strength of Pressure Castings.) Nov. 9, '29.

Schweissverbindungen.* (Welded Joints.) J. Kuhnke. Z. d. Bauver. Nov. 13, '29.

c. Preservation and Use of Materials, Painting, Waterproofing

Corrosion of Underground Steel Structures and Its Prevention.* Robert E. Wilson. West. Soc. Engrs. Oct., '29.

f. Rock Excavation, Mining, Rock Removal

Abstracts of Institute Publications. Min. & Metal. Dec., '29.

Appareil Autolaveur, Système Bongera, pour le lavage des charbons.* (Bongera Type of Autolaveur Apparatus for Washing Coal.) S. de Echegaray. Gen. Civ. Nov. 16, '29.

g. Execution of Works, Specifications**2. Of Concrete**

A Substitute for the Compression Test of Concrete. George J. Griesenhauer. Eng. N. R. Nov. 28, '29.

4. Of Metal

Gas-Welding Design and Erection on a 300-Ton Mill Building.* H. M. Priest and H. H. Moss. Eng. N. R. Dec. 2, '29.

Gas-Welding Shop Fabrication of a 300-Ton Mill Building.* H. M. Priest and H. H. Moss. Eng. N. R. Dec. 19, '29.

5. Of Reinforced Concrete

Details of Steel Cores for Reinforced Concrete Columns.* Frank A. Randall. Conc. Nov., '29.

h. Foundations, Bridge Piers, and Abutments

Pier Construction for the Mid-Hudson Bridge at Poughkeepsie, New York.* James W. Rollins. Bost. Soc. C. E. Oct., '29.

Record Speed in Building Construction Due to Ingenious Foundation Scheme.* W. T. McIntosh. Eng. & Contr. Nov., '29.

Pneumatic Caisssons Improvised from Open Cylinders.* Phillips B. Tartt. Eng. N. R. Nov. 28, '29.

Novel Sinking Equipment for Steel Cylinder Foundations.* Eng. N. R. Dec. 19, '29.

k. Tunnels and Tunneling-Shields

Heavy Construction on New Line for L. & N. R. R.* Eng. N. R. Dec. 12, '29.

Steam Operation No Obstacle to Use of Moffat Tunnel.* R. F. Sopris. Ry. Age Dec. 21, '29.

Note sur la Construction du Tunnel de l'Ave-Maria à Boulogne-sur-Mer.* (Note on the Construction of the Tunnel from Ave-Maria to Boulogne-sur-Mer.) Tettelin. Rev. Gen. Nov., '29.

D. Highways**c. Construction**

Methods for Constructing Smooth-Riding Bituminous Surfaces.* C. N. Conner. Public W. Nov., '29.

Street Paving Job Requires Much Rock Excavation.* Lester H. Burns. R. & S. Nov., '29.

Constructing Highway Embankment Across Lake.* A. S. Marean. (From *Highway Bulletin*, North Dakota Highway Dept.) R. & S. Nov., '29.

Reconstructing the Mohawk Trail with Bituminous Macadam.* Public W. Nov., '29.

Pacific Highway, California.* West. Constr. N. Nov. 10, '29.

An Asphalt Emulsion for Road Surfaces.* Can. Engr. Nov. 19, '29.

Asphalt Pavements of Rough Texture. F. J. LeDuc. (From paper read before Asphalt Pav. Conference.) Can. Engr. Nov. 26, '29.

Economics of Grading and Paving. A. Stellhorn. (Paper read before Am. Road Bldrs. Assoc.) Can. Engr. Dec. 3, '29.

Road Reconstruction Without Detouring.* W. A. Van Duzer. Eng. N. R. Dec. 5, '29.

New Knowledge of Roads.* (Papers read before Highway Research Board.) Eng. N. R. Dec. 19, '29.

Paved Highway in Yosemite Valley.* West. Constr. N. Nov. 25, '29.

d. Maintenance

Maintenance Equipment for Highways. C. F. Owens. (Paper read before Purdue Univ.) Can. Engr. Nov. 19, '29.

Highway Beautification.* James H. Taylor. (Paper read before Highway Div.) Am. Soc. C. E. Dec., '29.

e. Street Cleaning, Dust Prevention, Snow Removal

Street Cleaning and Refuse Collection.* R. & S. Nov., '29.

Städtischer Reinigungsdienst in Holland.* (Municipal Purification Service in Holland.) J. J. Ehemann. Tech. Gemain. Nov. 5, '29.

g. Machinery and Tools

Equipment for Keeping the Streets and Highways Open to Winter Travel.* R. & S. Nov., '29.

Power-Shovel Production Grading Highway Roadbed.* Andrew P. Anderson. Eng. N. R. Nov. 28, '29.

Transit System of Mixing Concrete.* Can. Engr. Dec. 3, '29.

h. Vehicles, Automobiles, Traffic

Reserving "Main Street" for Essential Traffic. Harold M. Gould. (From paper read before Safety Cong.) R. & S. Nov., '29.

A Plan for Speeding Traffic Flow.* R. & S. Nov., '29.

Reasons and Methods for Making Traffic Counts. Reyburn Hoffman. (Paper read before Safety Cong.) R. & S. Nov., '29.

Stop Signs for Arterial Streets.* George D. Burr. Nov. 10, '29.

Traffic Control in Massachusetts.* Maxwell Halsey. (Paper read before Highway Div.) Am. Soc. C. E. Dec., '29.

E. Bridges, Viaducts and Arches

b. Iron and Steel Bridges and Viaducts

Construction of the New Clark Street Bridge.* Paul Schioler. West. Soc. Engrs. Nov., '29. Springfield Bridge.* A. H. Benedict. West. Constr. N. Nov. 25, '29. General Specifications for Steel Railway Bridges. (Report of Comm. Am. Soc. C. E. & Am. Ry. Eng. Assoc.) Am. Soc. C. E. Dec., '29. The Lake Champlain Bridge.* Charles M. Spofford. Discussion: H. W. Troelsch, George Burrows, J. W. Rollins, and Frederic H. Fay. (Paper read before Struc. Div.) Am. Soc. C. E. Dec., '29.

d. Concrete and Reinforced Concrete Bridges and Viaducts

Zwei neue Strassenbrücken über die Naabarme in Schwandorf.* (Two New Highway Bridges Over the Naabarme in Schwandorf.) von Moro. Z. d. Bauver. Nov. 20, '29.

f. Suspension Bridges, Transfer Bridges

The Rope-Strand Suspension Bridge at Grand'Mere, Quebec.* D. B. Steinman. Eng. N. R. Nov. 28, '29.

Wires and Cables for a Great Bridge.* A. E. Cripps. Sci. Am. Dec., '29. Thirty-two-Rope Cable Suspension System on South American Bridge.* Carlos G. Gerstrom. Eng. N. R. Dec. 5, '29.

Construction of the Ambassador Bridge.* R. G. Cone. Can. Engr. Dec. 10, '29.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Traveling Cranes

Motors and Control for Movable Bridges.* H. W. Pittenger. Eng. N. R. Dec. 19, '29.

Die Hubbrücke über den Koningshaven in Rotterdam.* (The Lift-Bridge Over the Koningshaven in Rotterdam.) Joosting. Ver. deu. Ing. Nov. 9, '29.

Ein schnellfahrender Schwimmkran mit diesel-elektrischen Vierschraubenantrieb.* (A High-Speed, Diesel-Electric, Four-Propeller Floating Crane.) P. Frenzen and O. Neugebauer. Ver. deu. Ing. Nov. 23, '29.

h. Computation, Tests, etc.

Calcul de l'Arc Doublement Encastré à Section Variable et de Forme Quelconque.* (Calculation of Double-Fixed Arches of Variable Section and of Any Shape.) Léon Légens. Gen. Civ. Nov. 2, '29.

Experimentelle Brückenuntersuchungen in Russland.* (Experimental Bridge Investigations in Russia.) Saller. Z. d. Bauver. Nov. 20, '29.

Dauerversuche an genieteten und geschweißten Brücken.* (Endurance Tests on Riveted and Welded Bridges.) R. Bernhard. Ver. deu. Ing. Nov. 23, '29.

F. Inland Waters and Waterways

b. Canals (General Articles)

The \$87,500,000 Volga-Don Canal.* A. Axamitny. Eng. & Contr. Nov., '29.

c. Stone Bridges and Viaducts

St. Lawrence and Its Ice Problems. H. T. Barnes. Can. Engr. Nov. 19, '29.

Calaveras Flood Control Dam.* K. L. Parker. West. Constr. N. Nov. 25, '29.

Benefits of Proposed River Cutoffs Determined by Model.* Eng. N. R. Dec. 5, '29.

g. Consolidation of Banks, Leakage, Maintenance of Channel

Lake Shore Protection.* W. G. Potter. West. Soc. Engrs. Nov., '29.

Mississippi River Levee Work Uses Varied Equipment.* Victor J. Brown. Eng. & Contr. Nov., '29.

Storm Protection for Lakefront Building at Chicago.* Eng. N. R. Dec. 12, '29.

G. Maritime Works

c. Vessels and Maritime Navigation, Lighthouses, Buoys, Various Signals

Die Motorjacht "Cyprus"—erbaut auf der Fried. Krupp-Germaniawerft, Aktiengesellschaft, Kiel.* (The Motor Yacht "Cyprus" Built at the Fried. Krupp-Germania Shipyard, Kiel.) E. Cords. Ver. deu. Ing. Nov. 23, '29.

g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers

A Scuttled Fleet Is Salvaged.* David Masters. Sci. Am. Dec., '29.

Trailing Suction Dredger for the Argentine Government.* Eng. Dec. 6, '29.

i. Harbors

South African Ports: Their Working and Organisation.* Dock & Harbour. Nov., '29.

H. Railroads, Street and Interurban Railways Automobiles Aeronautics

a. Railroads

1. General Articles

The Selection and Training of Men for the Position of Foreman. (Paper read before Am. Ry. Bridge & Bldg. Assoc.) Ry. Eng. & Main. Nov., '29.

Is a Uniform Force Practical? Ry. Eng. & Main. Nov., '29.

Heavy Construction on New Line for L. & N. R. R.* Eng. N. R. Dec. 12, '29.

4. Track

Note on the Calculation of Rails for High Speeds. F. Corini. Int. Ry. Cong. Assoc. Sept., '29. The Operation and Maintenance of Railway Tracks in Region of Heavy Snowfall.* F. W. Alexander. Eng. Inst. Can. Nov., '29.

The Operation and Maintenance of Railway Track in Districts of Heavy Snowfall.* C. B. Brown. Eng. Inst. Can. Nov., '29.

The Inspection and Maintenance of Track Scales. (Paper read before Am. Ry. Bridge & Bldg. Assoc.) Ry. Eng. & Main. Nov., '29.

5. Signals and Safety Apparatus

On the Question of Signaling of Lines for Fast Traffic and in Main Stations. Daylight Signals. Automatic Block System.* G. H. Dryden. Int. Ry. Cong. Assoc. Sept., '29.

Normal and Reverse Direction Signals Solve Operating Problem for D. & R. G. W. on Mountain Grade.* Ry. Age Dec. 7, '29.

Big Four Installs Retarders at Shadronville Yard.* Ry. Age Dec. 14, '29.

St. Louis Combination Electric Switcher Tested.* Ry. Age Dec. 21, '29.

6. Rolling Stock (Locomotives, Cars) Fuel

On the Question of Locomotives of New Types; in Particular Turbine Locomotives and Internal Combustion Motor Locomotives.* R. E. L. Maunsell. Int. Ry. Cong. Assoc. Sept., '29.

The Calculation of the Stresses Set Up in a Bogie Frame Running Through a Curve.* F. Legelin. Int. Ry. Cong. Sept., '29.

On the Question of Improvements in the Steam Locomotive.* A. Parmantier. Int. Ry. Cong. Assoc. Sept., '29.

On the Question of Electric Locomotives for Main Line Traction.* Kichi Asakura and Hisashi Imaizumi. Int. Ry. Cong. Assoc. Sept., '29.

On the Question of Electric Locomotives for Main Line Traction.* de Boysson & Leboucher. Int. Ry. Cong. Assoc. Sept., '29.

On the Question of All Steel Coaches. Comparison with Vehicles Built of Wood.* Martin Garcia-Varo and Pablo Fralle. Int. Ry. Cong. Assoc. Sept., '29.

Railroads Accept Many Cars with Non-Standard Loads.* (From paper read before Master Car Bldrs. and Supr's. Assoc.) Ry. Age Nov. 23, '29.

Locomotives Decapod à 3 Cylindres de la Compagnie des Chemins de Fer de l'Est.* (Decapod Three-Cylinder Locomotives of the Est Railway Company.) Duchatel. Rev. Gen. Nov., '29.

7. Uses of Electricity

On the Question of Economical Traction Methods for Use in Particular Cases.* R. H. Nicholls. Int. Ry. Cong. Assoc. Sept., '29.

Main Line Electrification on the Great Indian Peninsula Railway.* Engr. Nov. 15, '29.

Electric Traction in Holland.* C. G. Van Mansvelt. Ry. Age Nov. 30, '29.

L'Electrification de la Ligne de Culoz à Modane par la Compagnie P.-L.-M.* (The Electrification of the Line from Culoz to Modane by the P.-L.-M. Company.) Gen. Civ. Nov. 2, '29.

Les Voitures Automotrices Diesel-Electriques du chemin de fer d'Appenzell (Suisse).* (Diesel-Electric Car for the Appenzell Railway, Switzerland.) E. Bard. Gen. Civ. Nov. 9, '29.

8. Stations, Terminals, Engine Houses, Shops

Wearing Surfaces for Passenger and Freight Platforms. (Paper read before Am. Ry. Bridge & Bldg. Assoc.) Ry. Eng. & Main. Nov., '29.

Reducing the Cost of Maintaining Roadway Buildings and Small Stations. (Paper read before Am. Ry. Bridge & Bldg. Assoc.) Nov., '29.

Reading Completes Attractive Station at Philadelphia.* Ry. Age Nov. 23, '29.

New Haven Sets New Mode in Passenger Station Design.* Ry. Age Nov. 30, '29.

Union Pacific Opens System Reclamation Plant.* Ry. Age Dec. 21, '29.

9. Technical and Commercial Use

Perishables Require Specialized Operations.* Ry. Age Nov. 30, '29.

b. Special Railroads**3. Narrow Gauge, Light Railways**

On the Question of the Improvements in the Permanent Way Equipment of Light Railways.* Hamdi El Kattan. Int. Ry. Cong. Assoc. Sept., '29.

c. Ferry Boats

The Maintenance of Water Transport Facilities for Railway Equipment. (Paper read before Am. Ry. Bridge & Bldg. Assoc.) Ry. Eng. & Main. Nov., '29.

f. Aeronautics**1. General Articles**

Insuring Safety on Airlines.* Lester D. Seymour. Sci. Am. Dec., '29.

Neuzzeitliche Verfahren der Verkehrssicherung.* (Modern Methods in Insuring Communication.) H. Fassbender. Ver. deu. Ing. Nov. 2, '29.

Der amerikanische Verkehrsflugzeugbau.* (American Transportation Airplane Construction.) K. H. Rühl. Ver. deu. Ing. Nov. 9, '29.

3. Aeroplanes

Giant Airplanes.* Reginald M. Cleveland. Sci. Am. Dec., '29.

4. Aerodromes and Landing Fields

Meeting Airport Needs with Highway Practices. (Papers read before Am. Road Bldrs. Assoc.) Eng. N. R. Nov. 28, '29.

Weighted Cables Raise 360-Ton Arches in Airship Dock.* Eng. N. R. Dec. 5, '29.

I. Municipal Water-Works. Agricultural Engineering. Irrigation**a. General Articles**

Management and Operation of a Canadian Water Works System. W. E. MacDonald. Am. W. W. Assoc. Oct., '29.

Responsibility of Water Companies for Fire Protection.* Robert G. Gordon and Paul Hansen. Am. W. W. Assoc. Oct., '29.

Metropolitan Water Supply.* Frank E. Winsor. Am. Soc. C. E. Dec., '29. Report of the Committee of the Irrigation Division on "A National Reclamation Policy." Discussion: John A. Widtsoe and F. H. Newell. Am. Soc. C. E. Dec., '29.

b. Hydrology, Water Resources

Water Supply from Rainfall on Valley Floors.* Discussion: W. F. Rowe. Am. Soc. C. E. Dec., '29.

Hygienische Erfahrungen der Wassergewinnung während der Frostperiode des Winters 1928/29. (Hygienic Experiences in Water Supply During the Freezing Period of the Winter of 1928/29.) Krüsmann and H. Bruns. Gas und Wasser. Oct. 26, '29.

c. Dams and Reservoirs

Design and Construction of a Covered Concrete Reservoir.* C. A. McClain. Am. W. W. Assoc. Oct., '29.

The Subsidence at Sugarloaf Dam, Victoria.* F. Esling. Comwth. Engr. Oct., '29.

Two City Reservoirs Involve Distinctive Types of Concrete Roof Design.* Nelson Taylor. Hydraulic Eng. Nov., '29.

Methods of Construction of Baldslow Service Reservoir, 2 000 000 Gallons Capacity.* S. Little. Inst. Mun. & Co. Eng. Nov. 12, '29.

Construction of Municipal Dam, Melfort.* J. G. Schaeffer. Can. Engr. Nov. 19, '29.

Essential Facts Concerning the Failure of the St. Francis Dam. (Report of Comm. of Board of Direction.) Discussion: Frank S. Bailey and James R. Griffith. Am. Soc. C. E. Dec., '29.

Reconstruction of Table Rock Cove Earth Dam After Dangerous Washout and Slump.* S. T. Henry. Eng. N. R. Dec. 12, '29.

Die Wasserversorgung der Gemeinden aus Talsperren.* (Regional Water Supply from Reservoir Dams.) A. Vogt. Gesund. Ing. Nov. 2, '29.

d. Analysis and Purification of Water

The Purification of Water by Ultraviolet Radiation.* John Milton Blocher. Am. W. W. Assoc. Oct., '29.

Electrolytic Cells in Chlorination for the Destruction of Algae.* William T. Bailey. Am. W. W. Assoc. Oct., '29.

Errors in the Clark Method for Determining Hardness.* George G. Town. Am. W. W. Assoc. Oct., '29.

Deaeration of Water in Relation to Character of Water Supply. J. R. McDermet. Am. W. W. Assoc. Oct., '29.

High Manganese Effluents from Idle Filters.* A. C. Janzig and I. A. Montank. Am. W. W. Assoc. Oct., '29.

The Use of Liquid Chlorine in Southern California for Purification and Sanitation.* G. T. Lulopp. Hydraulic Eng. Nov., '29.

Neuerungen auf dem Gebiete der chemischen Trinkwasserreinigung und Bericht über die jetzige Anwendung von aktivierter Kohle und Erde.* (Improvements in the Subject of Chemical Purification of Drinking Water and Report on the Present Use of Active Charcoal and Earth.) O. Koenig. Gas und Wasser. Serial beginning Nov. 2, '29.

Chlorbedarf und bacterizide Wirkung des Chlors bei der Trinkwassersterilisation.* (Chlorine Requirement and Bactericidal Action of Chlorine in the Sterilization of Drinking Water.) Victor Frobose. Gesund. Ing. Nov. 16, '29.

Phenolschwund im Wasser.* (The Disappearance of Phenol in Water.) H. Bach. Gesund. Ing. Nov. 16, '29.

Ueber oligodynamische Trinkwassersterilisierung vermittelst des Katadyn-Verfahrens.* (On Oligodynamic Sterilization of Drinking Water by the Catadyn Method.) F. Konrich. Gesund. Ing. Nov. 23, '29.

e. Distribution of Water

Water Waste. C. P. Gross. Am. W. W. Assoc. Oct., '29.

Copper Tubing for Underground Service Lines. P. B. Andrews. Am. W. W. Assoc. Oct., '29.

Water Supply for Rockhampton, Queensland. G. B. Symonds. (From report to City Council.) Comwth. Engr. Oct., '29.

City Water System Planning With Reference to Fire Fighting Possibilities.* L. F. Brown. Hydraulic Eng. Nov., '29.

Factors and Problems to Be Considered in Design of Water Pipe Lines.* Thomas F. Wolfe. Hydraulic Eng. Nov., '29.

Protection of Underground Pipe Lines from Deterioration. (Paper read before Am. Ry Bridge & Bldg. Assoc.) Ry. Eng. & Main. Nov., '29.

East Bay District Completes Booster Plant at Walnut Creek.* F. W. Hanna. Hydraulic Eng. Nov., '29.

Use of Water on Federal Irrigation Projects. Discussion: George N. Carter. Am. Soc. C. E. Dec., '29.

Government Reclamation Policy in British India. Discussion: E. R. Foy. Am. Soc. C. E. Dec., '29.

Emergency Restoration of Manila Water Supply. A. Gideon. Eng. N. R. Dec. 5, '29.

Large Water Pipe. Charles W. Burdick and Others. Eng. N. R. Dec. 12, '29.

Schleuderbetonrohre für Trinkwasserversorgung.* (Centrifugal Concrete Pipe for Potable Water Supplies.) Keller. Gas und Wasser Nov. 16, '29.

f. Drainage of Land

Terracing to Combat Soil Erosion Losses.* C. E. Ramser. Eng. N. R. Nov. 28, '29.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

Sewerage in the Boston Metropolitan District.* X. Henry Goodnough. Am. Soc. C. E. Dec., '29.

Sicherung von Kanalisationssystemen gegen Brand und Explosionsgefahren; praktische Untersuchungsergebnisse mit Hilfe von Diffusionsgasanzelgern.* (Protection of Sewer Pipe Lines from Fire and Explosion; Practical Results of Investigations Using Diffusion Gas Indicators.) A. Ringel. Gesund. Ing. Nov. 2, '29.

Die Betriebsstöfe der Stadtentwässerung Duisberg a. Rh.* (The Operating Stations of the Duisberg a. Rh. City Drainage System.) W. Seegert. Gesund. Ing. Nov. 9, '29.

Die Kanalisation von Bad Rehburg. Ein Beitrag zur Diskussion der Frage Mischsystem oder Trennsystem bei der Kanalisation kleiner Städte.* (The Canalization of Bad Rehburg. A Contribution on the Discussion of the Mixed System or Separate Systems in the Canalization of Small Cities.) Kehr. Tech. Gemein. Nov. 20, '29.

b. Sewage Disposal, Purification

Salem, Ohio, Sewage Treatment Plant.* F. S. Barckoff. Public W. Nov., '29.

The Preservation of Rivers and Streams From the Standpoint of Water Supply. Some Observations on River Pollution.* J. B. Firth. Inst. Mun. & Co. Engrs. Nov. 26, '29.

The Application of Bleaching Powder as an Auxiliary Treatment of Sewage.* Herbert D. Bell. Inst. Mun. & Co. Engrs. Nov. 26, '29.

Successive Separation in Sewage Disposal Systems.* F. C. Temple. Inst. Mun. & Co. Engrs. Nov. 26, '29.

Pre-Determining the Extent of a Sewage Field in Sea Water.* Discussion: Harrison P. Eddy. Am. Soc. C. E. Dec., '29.

Filtering Materials for Water and Sewage Works. (Progress Report of Comm. San. Eng. Div.) Discussion: J. E. Lamar. Am. Soc. C. E. Dec., '29.

First Two Activated-Filter Plants in Japan.* Tsunejiro Kawahara. Eng. N. R. Dec. 12, '29.

Die Reinigung der Abwasser des Kohlenbergbaues und der Kohlenwäsche.* (Purification of Waste Water from Coal Mines and Coal Washers.) A. Reich. Gesund. Ing. Nov. 9, '29.

Beitrag zur Frage der Disinfektion und Entwesung mittels Heissluft.* (Contribution to the Question of Disinfection and Sterilization by Hot Air.) Fr. Stoppel. Gesund. Ing.

Nov. 9, '29.

Das Leipziger Klärbecken.* (The Leipzig Clarification Basin.) Peters. Tech. Gemein.

Nov. 20, '29.

Die Abwasserreinigungsanlagen der Stadt Königsberg i. Pr.* (The Sewage Purification Plants of the City of Königsberg i. Pr.) R. Brüche and G. Sattler. Gesund. Ing. Serial beginning Nov. 23, '29.

K. Heat Engines

a. Steam Engines, Boilers

The Dissociation of Water in Steel Tubes at High Temperatures and Pressures.* C. H. Fellows. Am. W. W. Assoc. Oct., '29.

Les Chaudières Wood de la Station Centrale de Brighton (Angleterre).* (The Wood Boilers and the Brighton Central Station in England.) Gen. Civ. Nov. 2, '29.

c. Gas and Oil Engines

Employ des Huiles de Goudron de Houille non volatiles dans les moteurs à explosion.* (The Use of Non-Volatile Coal-Tar Oils in Explosion Engines.) Gen. Civ. Nov. 9, '29.

L. Electricity

a. Production of Electricity

La Production et la Distribution de l'Energie Electrique en Suisse.* (The Production and Distribution of Electric Energy in Switzerland.) Lassalle. Ann. T. P. Belg. Oct., '29.

b. Distribution and Transmission of Electricity

1. Power Plants

Purchased Power for Pumping Station Operation.* T. R. Hughes. Am. W. W. Assoc. Oct., '29.

M. Architecture

b. Business and Commercial Buildings

Shell Building, San Francisco.* A. Gilbert Darwin. West. Constr. N. Nov. 25, '29.

Der Essener Grossmarkt.* (The Essen Central Market.) Z. d. Bauver. Nov. 27, '29.

c. Residences, Hotels

Die Dammerstocksiedlung in Karlsruhe i. B.* (The Dammerstock Community in Karlsruhe i. B.) Fuchs-Röll. Z. d. Bauver. Nov. 6, '29.

e. Hospitals and Asylums

Kaiser-Wilhelm-Institut für Arbeitsphysiologie in Dortmund.* (The Kaiser-Wilhelm Institute for the Physiology of Work, in Dortmund.) Z. d. Bauver. Nov. 13, '29.

f. Factories and Mill Buildings

Tour-Carrousel Vertical à plateau de 12 mètres de diamètre.* (Vertical Lathe With a Plate 12 Meters in Diameter.) Gen. Civ. Nov. 16, '29.

g. Other Buildings

Le Théâtre Pigalle, à Paris.* (The Pigalle Theater in Paris.) Paul Calfas. Gen. Civ. Nov. 23, '29.

h. Roofs, Domes

Weighted Cables Raise 360-Ton Arches in Airship Dock.* Eng. N. R. Dec. 5, '29.

i. Fire and Earthquake Protection

Decrease Fires Through Better Fire Protection. Percy Bugbee. Am. W. W. Assoc. Oct., '29.

x. Miscellaneous

L'Isolation Acoustique des Constructions et des machines.* (Sound-Insulation of Buildings and Machinery.) J. Katel. Gen. Civ. Nov. 16, '29.

O. Administration. Legislation. Economics. Statistics

Administration of the Boston Metropolitan District. Davis B. Keniston. Am. Soc. C. E. Dec., '29.

Development of the Boston Metropolitan District.* Frederic H. Fay. Am. Soc. C. E. Dec., '29.

b. Economic Questions of a General Character, Valuations

Appraisal of Water Works Properties. H. F. Wiedeman. Am. W. W. Assoc. Oct., '29.

Charges and Method of Making Charges for Professional Services. (Report of Special Comm.)

Discussion: Ormond A. Stone. Am. Soc. C. E. Dec., '29.

d. Administrative and Financial Management of Means of Communication**2. Routes and Roads**

Equitable Distribution for Highway Purposes of Motor Vehicle License Fees and Gasoline Taxes. Frederic E. Everett. (Paper read before Highway Div.) Am. Soc. C. E. Dec., '29.

Equitable Distribution for Highway Purposes of Motor Vehicle License Fees and Gasoline Taxes. George H. Henderson. (Paper read before Highway Div.) Am. Soc. C. E. Dec., '29.

5. Railroads and Street Railways

On the Question of the Methods Followed in Training of Staff. Professional, Technical and Ordinary Working Grades. Barth. Int. Eng. Cong. Assoc. Sept., '29.

Transportation in the Metropolitan District. Edward Dana. Am. Soc. C. E. Dec., '29.

Q. Surveying and Geodesy

Le Théodolite Universel Wild avec duplicateur tachéométrique.* (The Wild Universal Theodolite with Tacheometric Duplicator.) Gen. Civ. Nov. 2, '29.

Leveling for Tunnels and Reservoirs for the Boston Metropolitan District Water Supply.* Larey G. Harris. Discussion: J. B. Babcock. (Paper read before Surv. & Map. Div.) Am. Soc. C. E. Dec., '29.

Surveys for Swift River Reservoir of the Boston Metropolitan District Water Supply.* N. LeRoy Hammond. Discussion: Charles B. Breed. (Paper read before Surv. & Map. Div.) Am. Soc. C. E. Dec., '29.

Triangulation in Massachusetts and Its Connection With Land Court Registration. Richard K. Hale. Discussion: George L. Hosmer. (Paper read before Surv. & Map. Div.) Am. Soc. C. E. Dec., '29.

S. City Planning

Engineer's Part in City Planning. George B. Ford. Engrs. & Eng. Oct., '29.

Toronto City Planning Recommendations.* (From report of Civic Depts. to City Council.) Can. Engr. Nov. 19, '29.

esthetic Engineering.* C. W. Geiger and Ruth Sabichi. Sci. Am. Dec., '29.

Relation of the Landscape Architect to the Allied Professions Engaged in City Planning. Discussion: Arthur A. Shurtliff. Am. Soc. C. E. Dec., '29.

The Planning of Capital Cities: Denver, Colorado. Discussion: William T. Lyle. Am. Soc. C. E. Dec., '29.

Park System of the Boston Metropolitan District.* Edwin H. Rogers. Am. Soc. C. E. Dec., '29.

The Plan of Boston: A Capital City.* Arthur C. Comey. Discussion: Robert Whitten. (Paper read before City Plan. Div.) Am. Soc. C. E. Dec., '29.

City Planning Education for Public Officials and the General Public. Charles R. Gow. Discussion: Karl B. Lohmann. (Paper read before City Plan. Div.) Am. Soc. C. E. Dec., '29.

City Planning Education for the Professional City Planner.* H. V. Hubbard. (Paper read before City Plan. Div.) Am. Soc. C. E. Dec., '29.

The Influence of Capital Cities on Other Cities in the State. John Nolen. (Paper read before City Plan. Div.) Am. Soc. C. E. Dec., '29.

Elevated Pedestrian Ways. A. L. Kasson. (Paper read before City Plan. Div.) Am. Soc. C. E. Dec., '29.

T. Oil and Oil Engineering

Schwimmende Sicherheits-Abschlusseinrichtungen für Petroleum- oder Oelhäfen.* (Floating Fire-Checking Devices for Petroleum and Oil Ports.) Bolte. Z. d. Bauver. Nov. 13, '29.

Engineering Societies Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers. A Chicago office is maintained in co-operation with the Western Society of Engineers, and a San Francisco office, in co-operation with the Engineers' Club of San Francisco and the California Section of the American Chemical Society. The Service is available only to the several memberships and is maintained by contributions from the Societies and their individual members who are directly benefited.

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MEN AVAILABLE

CIVIL ENGINEER, M. Am. Soc. C. E. Twelve years' maintenance, extension large municipal water supply, division engineer in charge improvements costing three to four million dollars. Four years design, construction wharves, docks, bulkheads, sea walls. Nine years designing engineer, chief engineer, engineering, contracting company, designers, builders of dams and hydro-electric plants. Registered professional engineer New York, North Carolina, Michigan. A-914.

CIVIL AND SANITARY ENGINEER, Assoc. M. Am. Soc. C. E.; married. Twenty years' designing and construction experience, covering sewerage, drainage, water supply, flood control, and paving. Desires responsible position in New York, Metropolitan District. B-1829.

STRUCTURAL ENGINEER, Assoc. M. Am. Soc. C. E.; age 39; practice covers designing and constructing industrial and commercial buildings. Specialist on reinforced concrete. Experienced in territory surrounding New York City. B-2288.

CONTRACTOR'S ENGINEER, Assoc. M. Am. Soc. C. E.; age 44; New York State license, professional engineer; desires to make a change. Executive of contracting company. Over twenty years' experience estimating, purchasing, plant layouts, superintendence and management in the following lines: subways, underpinning, foundations, sewage disposal plants, sewers, filtration plants, pumping stations, dams. B-4680.

CIVIL ENGINEER, M. Am. Soc. C. E. Twenty-eight years' experience in engineering design and construction, highways,

canals, sewerage, municipal, water supply, public buildings, reconnaissance, surveys, investigations, reports. Desires responsible position. Good personality, executive ability. Location, Eastern United States. B-5666.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E. General civil and mechanical engineering experience, also radio equipment. Could qualify to airport design or construction work. Interview solicited. B-7018.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 38; married. Eight years' preliminary and final surveys for irrigation, storage, hydro-electric developments. Eleven years actual construction of projects surveyed. Well experienced in estimating and construction involving heavy excavation, high explosives, earth dams, masonry structures. Available on two months notice. United States preferred. B-7043.

ENGINEER, Assoc. M. Am. Soc. C. E.; age 37; married. Sixteen years' experience as structural steel. Wishes opportunity as assistant to purchasing agent or in selling organization of established firm. B-7387.

CIVIL ENGINEER, M. Am. Soc. C. E.; age 40; technical education. Over twenty years' experience, consultations, investigations, reports, supervision, design, surveys and construction, on port and harbor works, waterways, terminals, railroads, irrigation, industrial plants, water-front and miscellaneous structures, buildings, foundations, etc. Fifteen years responsible charge and specialization water-front development, terminals, etc. B-7393.

RESEARCH ENGINEER, HYDRAULICS AND CONCRETE, Assoc. M. Am. Soc. C. E.; Cornell, C. E.; Ph. D.; age 31; married. Five years, surveys, designs, construction, hydro-electric projects. Three years, teaching, Cornell, hydraulics, concrete design, materials laboratory; graduate research, hydraulics, concrete. Two years, concrete research, U. S. Bureau of Standards, development, special apparatus. Technical French, German. B-7697.

LICENSED PROFESSIONAL ENGINEER, Assoc. M. Am. Soc. C. E.; age 49. Twenty-five years' experience in railway, highway, municipal, harbor and industrial engineering, exploration, boundary and property surveying. Mostly in foreign countries. Speaks Danish and has working knowledge of Spanish. Available on short notice to take charge of work or for investigations and reports. B-8567.

GRADUATE ENGINEER, Jun. Am. Soc. C. E. Five years of construction and one of real estate experience, of which three years were in the field on large memorial brick, stone, and steel buildings. Experienced in estimating, superintending, and servicing jobs. Location immaterial. B-8969.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 30; single. Licensed construction engineer and land surveyor, New Jersey. Two years' railroad experience, one year, foreign. Eight years' experience, State highways, municipal works. At present, resident engineer in charge of design and construction, fifteen miles of new highway and grade-crossing elimination. Successful locating experience. Will go anywhere. C-564.

GRADUATE CIVIL ENGINEER, M. Am. Soc. C. E.; age 40; married. Fifteen years' varied experience, including highways, bridges, streets, and pavements; five years with consulting municipal engineer on water-works, sewer systems, etc. Would like to associate with consulting engineer. Capital to invest. Location immaterial. Available at once. C-611.

CONSTRUCTION EXECUTIVE, SUPERINTENDENT, OR ENGINEER, Assoc. M. Am. Soc. C. E.; age 48; married; graduate civil engineer, Sheffield Scientific School, Yale University. Twenty years full charge construction, railroad, plain and reinforced concrete, bridge, highway and all kinds municipal work, sewerage systems, foundations, industrial and commercial buildings. Can use Spanish. New York, South or foreign country. C-675.

EXECUTIVE, CIVIL AND MINING ENGINEER, M. Am. Soc. C. E.; age 59. Experience in development, up-building of ports, harbors and their tributary districts; design, construction of railroad, steamship terminals; structures and facilities required for handling, storage, trans-shipment; municipal works, heavy foundations, water works, highway construction; investigation, appraisal of industrial, commercial enterprises and public utilities. C-971.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 27; married; wishes to become connected with contracting organization or consulting engineering firm. Three and one-half years, superintendent of bridge construction; two and one-half years, designing, detailing, and checking concrete and steel bridges. Willing, conscientious worker. Location preferably in Middle West. C-3531.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E. Six years' experience, four years in field on topographic, railroad and transmission line location surveys; two years in office designing and checking steel and concrete structures for mill buildings. At present employed. C-4339.

RECENT GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E. Employed on flood control, surveying and drafting, desires position as topographical draftsman or instrumentman, capable of handling transit and level, especially stadia traverse. Will locate anywhere. C-4841.

PLANT ENGINEER, M. Am. Soc. C. E.; graduate civil engineer. Twenty years' experience in executive direction of manufacturing plant building, design and construction, equipment and general plant maintenance with one of world's largest manufacturers; desires similar position in or near Philadelphia. Would also consider position as executive engineer with firm of architects or consulting engineers. C-5559.

CIVIL ENGINEER, M. Am. Soc. C. E.; graduated 1907; for company or consulting firm. Of sound civil engineering judgment, acquired during an extensive experience; design and construction, industrial plants, buildings and structures; investigations and general civil engineering problems. Experienced as chief engineer and construction manager. Has worked professionally in Latin American countries as well as United States. C-5629.

STRUCTURAL ENGINEER, Jun. Am. Soc. C. E.; B. S. in C. E.; age 25; single. Two years' experience in general construction and civil engineering work and one year as a structural steel draftman. Interested in both bridge and structural engineering. Location, New York City. C-6186.

CIVIL ENGINEER, M. Am. Soc. C. E., of world-wide experience would like to connect with contractors who have interests or who are willing to expand their activities to Italy and Spain. Knowledge of languages and first class references. C-6375.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 36; married; technical training. Thirteen years' broad experience structural design, railway location, construction, hydroelectric installation. Last six years, mining company, investigating, initiating mining projects, United States, Latin-America. Speaks Spanish, French. Specially qualified as investigator, industrial, mining enterprises, executive, assistant executive, United States or Latin-America. C-6418—99-A-1 (San Francisco).

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 40; single. Experienced in general and credit management, general and cost accounting, construction and estimating. Six years' experience on elevated railway reconstruction, ten years' as executive with large mixed metal manufacturer, two years' organizing and managing successful contracting business, specializing in water-proofing and roofing. C-6645.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; graduate Massachusetts Institute of Technology, 1926; age 26. Desires a sales position in firm manufacturing structural materials or equipment of engineering application. Experienced in structural design, stress analysis and estimating. C-6688.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; college graduate; age 42. Twenty years' practice, including broad general engineering experience, design, construction, railways, bridges, buildings, docks, municipal works; street railway operating executive; building contractor. Speaks Spanish. Qualified to undertake investigations, reports, Latin America. Desires connection with

consulting engineer, engineer sales organization, public utility, or general contractor. Go anywhere. C-6706.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 24; graduate Lehigh University, C. E., June, 1928; single. Employed on sewer construction for a year and a half. Desires work in design (preferably hydraulics or concrete) or a combination of design and construction. C-6787.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 25; single. Three years' experience with contractor in charge of sewage disposal, water-works and concrete construction. Desires position with contractor or consulting engineer. C-6805.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 47. Twenty years' experience on design and construction of subways, elevated railroad, water, sewers, etc. Last nine years, contractor on State road work and municipal work. C-6816.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 28; married. Three years' irrigation experience with Government, various capacities. Three years in charge, field forces on irrigation project in Mexico. Speaks some Spanish. Desires position with irrigation or hydro-electric company. Available soon. Excellent references. C-6827.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 25; single. Six years' varied experience, United States and Latin America. Speaks Spanish, French. Work included cost finding, estimates, reports, general construction, railroad, and highway location. Seeks opportunity to enter statistical and investment, investigation work with financial organization. No objection to any location. C-6845.

CIVIL ENGINEERING INSTRUCTOR, Assoc. M. Am. Soc. C. E.; age 29; engineering college graduate; two years' post-graduate work in structural engineering; civil engineering degree; five years, responsible teaching, civil engineering subjects, recognized college of engineering; practical experience, structural design and detailing; licensed structural engineer (New Jersey). Holds responsible teaching position, but desires teaching position in another institution. References. C-6854.

Membership

(From December 4, 1929 to January 7, 1930)

Additions

| MEMBERS | Date of Membership. |
|--|--------------------------|
| ADAMSON, Arthur Quintin. Constr. Executive, Architectural Bureau, Y. M. C. A., Care, Y. M. C. A., Jerusalem, Palestine..... | Assoc. M. Oct. 10, 1921 |
| ANDERSON, Laurence Edwin. Asst. Prof. of Eng., San Diego State Coll. (Res., 4483 North Ave.), San Diego, Calif..... | M. Oct. 7, 1929 |
| ARMSTRONG, Harry. Supt., Spencer, White & Prentis, Inc., New York (Res., 606 East 38th St., Brooklyn), N. Y..... | Jun. Mar. 15, 1926 |
| BALL, James Ogden. With Standard Oil Co. (Ind.) (Res., 1316 South Lincoln St.), Casper, Wyo..... | Assoc. M. Nov. 11, 1929 |
| BARBER, DeLoss Harold. Asst. Engr., Water Resources Branch, U. S. Geological Survey (Res., 1146 East 7th St.), Tucson, Ariz. | Affiliate Aug. 26, 1929 |
| BARRAGAN-DORCAS, Luis. 630 West 136th St., New York, N. Y. | |
| BECKWITH, Hal Abeel. Asst. Engr., Maverick County Water Impvt. Dist. No. 1, Eagle Pass, Tex..... | Assoc. M. June 10, 1929 |
| BELL, Raymond Page. 905 Franklin St., Wilmington, Del..... | Assoc. M. Dec. 16, 1929 |
| BERTRAM, George Edward. 120 North 11th St., Corvallis, Ore... | Assoc. M. June 10, 1929 |
| BOLLMAN, John Wendel. (The Bollman Eng. Co.), 608 Close Bldg., Toledo, Ohio..... | Jun. Nov. 11, 1929 |
| BONNESS, Joseph Denny. Paving Contr., 541 Forty-eighth St., Milwaukee, Wis..... | Jun. Oct. 14, 1929 |
| BOWIE, Nathaniel Mortimer, Jr. Mgr., Airport and Design Div., John B. Pike & Son, Inc. (Res., 214 Berkeley St.), Rochester, N. Y..... | M. Nov. 11, 1929 |
| CAMERON, Edward Hugh. Project Mgr., Jackson & Moreland, Boston (Res., 15 Davis Ave., West Newton), Mass..... | Assoc. M. Nov. 11, 1929 |
| CARVER, William Matthew. Instrumentman, State Dept. of Public Works, Lincoln (Res., Burchard), Nebr..... | Assoc. M. Dec. 16, 1929 |
| CATHER, LeRoy Heywood. Care, Charles De Leuw & Co., 111 West Washington St., Chicago, Ill..... | Assoc. M. Jan. 19, 1920 |
| CHRISTENSEN, Allen Derbridge. Baggs, Wyo..... | M. Oct. 14, 1929 |
| COLLARD, Arthur Ayres. 45 Severne Ave., Springfield, N. J..... | Jun. Nov. 11, 1929 |
| CROOKS, James Graham. 4700 Sansom St., Philadelphia, Pa..... | Assoc. M. June 10, 1929 |
| CROOM, William Puryear, Jr. Asst. Engr., City of Asheville, Box 182, Asheville, N. C..... | Jun. Dec. 16, 1929 |
| CUMMINS, Andrew Adair. Res. Engr., Hardy Dam, Consumers Power Co., Care, Stevens & Wood, Inc., Newaygo, Mich..... | Assoc. M. Sept. 12, 1921 |
| CUNETTA, Joseph. 551 De Kalb Ave., Brooklyn, N. Y..... | M. Dec. 16, 1929 |
| DAXON, John Edward. Engr., Phillips Petroleum Co., Bartlesville, Okla..... | Jun. Nov. 11, 1929 |
| DENZLER, Edwin William, Jr. Asst. Engr., Joint Comm. for Elimination of Toll Bridges over the Delaware River, Pennsylvania-New Jersey (Res., 237 Beechwood Ave.), Trenton, N. J..... | Jun. Dec. 4, 1922 |
| ELDRIDGE, Charles Job. Asst. Engr., Erie R. R., 71 West 23d St., Room 1500, New York, N. Y..... | Assoc. M. Dec. 16, 1929 |
| ELLIS, Merle Wilson. Computer Draftsman, East Bay Municipal Utility Dist., 512 Sixteenth St., Oakland, Calif..... | Jun. Nov. 11, 1929 |
| FALLGREEN, John Albert. City Engr., City Hall (Res., 505 Second St., N. E.), Auburn, Wash..... | Assoc. M. Dec. 16, 1929 |
| FRICKE, Frederick John. 812 School St., Coraopolis, Pa..... | Jun. Oct. 14, 1929 |
| GERDES, Henry George. Associate Engr., U. S. Engr. Office, 1st Dist., San Francisco (Res., 2204 Poppy Drive, Burlingame), Calif..... | Jun. Oct. 2, 1922 |
| GOULD, Gardner Sabin. (Silsbee & Gould), 100 Ames Bldg., Boston, Mass..... | Assoc. M. Nov. 11, 1929 |
| GRANT, Horace. Asst. Engr., Empire City Subway Co. Ltd., 138 Spring St., New York, N. Y..... | M. Dec. 16, 1929 |
| GUIZADO, José Ramón. Div. Engr., Junta Central de Caminos, David, Panama..... | Jun. Nov. 11, 1929 |
| HALL, Philip Bertram. 94 Eagle St., Troy, N. Y..... | Assoc. M. Nov. 11, 1929 |
| HALLMAN, William Thomas. Chf. of Survey Party, Town of Westfield, Westfield (Res., 441 Westminster Ave., Apartment 9-E, Elizabeth), N. J..... | Jun. April 7, 1924 |
| HANSARD, Orren Hardin. Engr., T. L. Herbert & Sons, 174 Third Ave., N., Nashville, Tenn..... | Assoc. M. Dec. 5, 1929 |
| HAURY, Arthur Francis. Asst.-Chf. Engr., Am. Cable Co., 230 Park Ave., New York (Res., 35-34 Ninety-fourth St., Jackson Heights), N. Y..... | Assoc. M. Nov. 11, 1929 |
| HAWKS, William Andrew. Field Engr., Chas. E. Bedaux Co., Inc., 271 Madison Ave., New York, N. Y. (Res., 19 Holbrook St., North Adams, Mass.)..... | Assoc. M. Dec. 16, 1929 |
| HEIDEMA, Pieter Bareld. Constr. Engr., Stevens & Wood, 608 Crane St., Schenectady, N. Y..... | Jun. Mar. 15, 1926 |
| | Assoc. M. July 15, 1929 |

MEMBERS—(Continued)

| | | Date of Membership. |
|---|-----------|---------------------|
| HENNING, Harvey Sydney. Res. Engr., Swanson-McGraw, Inc., Box 286, Pineville, La. | Jun. | July 15, 1929 |
| HESS, Raymond Edward. Asst. Secy., Am. Soc. for Testing Materials, 1315 Spruce St., Philadelphia (Res., 8222 Cadwalader Rd., Elkins Park), Pa. | Jun. | June 6, 1921 |
| HOADLEY, Anthony de Hothlegh. Asst. Prof., Civ. Eng., Union Coll., Civ. Eng. Bldg., Schenectady, N. Y. | Assoc. M. | Oct. 14, 1929 |
| HODGES, Joel Brower. Res. Engr., State Dept. of Public Works, Div. of Highways, Box 255, Newhall, Calif. | Jun. | Oct. 12, 1925 |
| HOFFMARK, Richard Frederick. Vice-Pres., A. Guthrie & Co., Inc., 552 Sherlock Bldg., Portland, Ore. | Assoc. M. | Dec. 16, 1929 |
| HOTKIEWICZ (Hotkie), William Joseph. Engr., The Vang Constr. Co., Flinleyville, Pa. | Assoc. M. | Dec. 16, 1929 |
| HOVEY, Ray Palmer. Structural Engr., Board of Harbor Comms., City of Los Angeles, City Hall (Res., 823 Third St.), San Pedro, Calif. | M. | Nov. 11, 1929 |
| JORGENSEN, Paul Johan. Structural Designer, Cleveland Union Terminals Co., 1020 Terminal Tower, Cleveland, Ohio. | Assoc. M. | Dec. 16, 1929 |
| KAMMER, Joseph Ivan. Retek-u 46, Budapest, Hungary. | Assoc. M. | Nov. 11, 1929 |
| KIEVIT, James Wesley. Structural Draftsman, Mills, Rhines, Bellman & Nordhoff, 1234 Ohio Bldg. (Res., 521 Nevada St.), Toledo, Ohio. | Jun. | Dec. 16, 1929 |
| KING, Herbert James. Supt., A. Guthrie & Co., Inc., Mahr Tunnel (K. M. 199 F. C. C. del P.), Mahr, Peru. | M. | Nov. 11, 1929 |
| KIRACOFER, Clifford William. 1835 Indianola Ave., Columbus, Ohio. | Jun. | Dec. 16, 1929 |
| KRIESEL, William Worth. 718 North 64th St., Seattle, Wash. | Jun. | Oct. 14, 1929 |
| LACY, George Harry. Draftsman and Chf. of Party, Gulf Production Co., P. O. Drawer C, Houston, Tex. | Assoc. M. | Dec. 16, 1929 |
| LEAVITT, Nathan Haime. Asst. Structural Engr., Treasury Dept., U. S. Govt. (Res., 1825 New Hampshire Ave., N. W., Apartment 305), Washington, D. C. | Jun. | Feb. 25, 1924 |
| LEWIS, Fred Justin. Prof., Civ. Eng., Vanderbilt Univ., Nashville, Tenn. | Assoc. M. | Dec. 16, 1929 |
| LITEHISER, Robert Reid. Engr. and Office Mgr., Portland Cement Assoc. (Res., 46 West Weber Rd.), Columbus, Ohio. | Assoc. M. | Nov. 21, 1921 |
| LLOYD, Howard Marshall. In Chg., Washington Office, Kalman Steel Co., 811 Barr Bldg., Washington, D. C. | Assoc. M. | Nov. 11, 1929 |
| LOANE, Edward Sickel. 1509 East North Ave., Baltimore, Md. | Jun. | Dec. 16, 1929 |
| MACCARTHY, Thomas George. Prof., Civ. Eng., Southern Methodist Univ., Dallas, Tex. | Assoc. M. | June 19, 1922 |
| MCCORDIC, George Wilfrid. Civ. Engr. (McCordic, Stadler & Larson), 2727 David Stott Bldg., Detroit, Mich. | Assoc. M. | Dec. 16, 1929 |
| MCGANN, Leonard Aloysius. Care, U. S. Geological Survey, Marlin, Schuykill Co., Pa. | Jun. | Nov. 11, 1929 |
| McKINLAY, Gerald. 1522 Thirteenth St., Sacramento, Calif. | Assoc. M. | Nov. 11, 1929 |
| MCLEAN, John Harris. Junior Engr. and Detailer, Concrete Eng. Co. (Res., 1462 Hampshire St.), San Francisco, Calif. | Jun. | Nov. 11, 1929 |
| MARQUETTE, Franklin Bush. Asst. Chf. Draftsman, Constr. Dept., Baldwin Locomotive Works (Res., 1429 Mt. Vernon St.), Philadelphia, Pa. | Assoc. M. | Nov. 11, 1929 |
| MEEK, Richard Clarkson. Vice-Pres., Contract Waterproofing Co., 1853 Railway Exchange Bldg., St. Louis, Mo. | Affiliate | Nov. 11, 1929 |
| MOHR, William Henry. Civ. Eng. Dept., California Inst. of Technology, Pasadena (Res., 1247 Euclid Ave., Santa Monica), Calif. | Jun. | Nov. 11, 1929 |
| MURRAY, Oliver Harwell. Care, U. S. Engrs., Quarter Boat No. 6, Natchez, Miss. | Jun. | June 10, 1929 |
| NEAFIE, Andrew James, Jr. Intervale Rd., Mountain Lakes, N. J. | Jun. | Dec. 16, 1929 |
| NEER, Don Morgan. Res. Engr., State Highway Dept. (Res., 4105 Speedway), Austin, Tex. | Assoc. M. | Nov. 11, 1929 |
| PAWLOWSKI, Stanislaw. 60 West 58th St., New York, N. Y. | Jun. | Oct. 14, 1929 |
| PEARCE, Cecil Edward. Chf. Designing Engr., Pasadena Water Dept., 319 City Hall, Pasadena, Calif. | Jun. | Nov. 26, 1923 |
| PONTZ, Harry Arthur. Structural Engr., Taylor-Davis, Inc., 4250 Wissahickon, Philadelphia (Res., Fairview Village), Pa. | Assoc. M. | Nov. 11, 1929 |
| PRESTRIDGE, Kenneth Kade. Design Engr., Maverick County Water Impvt. Dist. No. 1, Eagle Pass, Tex. | Assoc. M. | July 15, 1929 |
| RAYBURN, Elbert Brevard, Jr. Care, Knoxville Power Co., Calderwood, Tenn. | Jun. | Dec. 16, 1929 |
| REANEY, Charles Franklin. Structural Engr., Portland Cement Assoc. (Res., 5341 Goodwin Ave.), Dallas, Tex. | Assoc. M. | June 10, 1929 |
| REISS, Sidney. 28 Clinton St., New York, N. Y. | Jun. | Nov. 11, 1929 |
| RICE, Paul Preston. 1041 Wood St., Easton, Pa. | Jun. | Oct. 14, 1929 |

| MEMBERS—(Continued) | | Date of Membership. |
|------------------------------|---|---|
| RINEBOLD, William Jennings. | 196 Pinehurst Ave., New York, N. Y. | Assoc. M. Nov. 11, 1929 |
| RITTERSPACH, Blair. | Central Station Inst., 72 West Adams St., Chicago, Ill. | Jun. Oct. 14, 1929 |
| ROSENBERGER, Raymond Joyce. | Care, Highway Eng. Bureau, 918 National Press Bldg., Washington, D. C. | Jun. Oct. 12, 1925 Assoc. M. Nov. 11, 1929 |
| SCHWEGLER, Ramon Miles. | Route 1, Box 145, Astoria, Ore. | Jun. Oct. 14, 1929 |
| SCOTT, Marion Burdick. | 1910 East 1st St., Tucson, Ariz. | Jun. Oct. 14, 1929 |
| SHOCKLEY, Dale Robert. | 1629 East Cherokee, Enid, Okla. | Jun. Dec. 16, 1929 |
| SIMON, Paul. | Care, The Cincinnati Union Terminal Co., 1020 Temple Bar Bldg., Cincinnati, Ohio. | Jun. June 10, 1929 |
| SIMPSON, Francis Eugene. | Associate Structural Engr., Dept. of Water Supply, Div. of Eng. (Res. 8100 West Warren Ave.), Detroit, Mich. | Assoc. M. Aug. 30, 1926 M. Dec. 16, 1929 |
| SKINNER, Colin O'Neal. | Engr., Am. Inst. of Steel Constr., Inc., New York (Res., 41 Marion St., Lynbrook, N. Y.) | Assoc. M. Oct. 14, 1929 |
| SLASON, Earle Bernice. | 417 Grand Ave., Kansas City, Mo. | Jun. Dec. 16, 1929 |
| SOUCEK, Jaromir Jan. | Ulavky 10, Prague III, Czechoslovakia. | Jun. Nov. 11, 1929 |
| SPIEGEL, Jacob Birk. | Dist. Engr., U. S. Geological Survey, 23 Federal Bldg., Topeka, Kans. | Assoc. M. April 7, 1924 M. Dec. 16, 1929 |
| STEPPLETON, Harold Austin. | Designing Engr., H. P. Jones & Co., 1606 Second National Bank Bldg., Toledo, Ohio. | Assoc. M. Oct. 14, 1929 |
| STIRNEWEIS, Theodore. | Laurelhurst Apartments, 39th and Bel- mont Sts., Portland, Ore. | Jun. Oct. 14, 1929 |
| STRECKER, Werner Campbell. | Civ. Engr., Gen. Elec. Co. (Res., 793 Central Parkway), Schenectady, N. Y. | Assoc. M. Dec. 16, 1929 |
| TAGGART, Robert Strangeway. | 122 West Main St., Babylon, N. Y. | Jun. Oct. 14, 1929 |
| THOMAS, Carl Francis. | Prin. Asst. Engr., Spokane, Portland & Seattle Ry. and Affiliated Lines, Chamber of Commerce Bldg. (Res., 1686 Alameda Drive), Portland, Ore. | Assoc. M. Sept. 10, 1923 M. Dec. 16, 1929 |
| THOMPSON, Wells Nash. | Mgr., Japan Branch, The H. K. Fergu- son Co., 583 Marunouchi Bldg., Tokyo, Japan. | Assoc. M. Nov. 11, 1929 |
| THURBER, Arnold Edward. | Instr., Civ. Eng., Ohio Northern Univ. (Res., 403 South Gilbert St.), Ada, Ohio. | Jun. Nov. 11, 1929 |
| TOPPING, Charles Hinchman. | Cost Engr., Lago Petroleum Corpo- ration, Apartado 172, Maracaibo, Venezuela. | Jun. Nov. 11, 1929 |
| TOPPING, Howard Franklin. | With Ralph Modjeski 369 Lexing- ton Ave., New York, N. Y. | Jun. May 28, 1923 Assoc. M. Nov. 11, 1929 |
| VAN ORMAN, Howard Ashley. | Sales Representative, Am. Tar Products Co., 814 Woodward Bldg., Birmingham, Ala. | Assoc. M. Nov. 11, 1929 |
| WADA, Yoshichika. | 585 Shimo-Ochiai, Tokyo, Japan. | Jun. Sept. 7, 1887 Assoc. M. Oct. 2, 1895 M. Oct. 7, 1929 |
| WAGNER, Richard Carl. | Junior Engr., Bridge Dept., State Highway Comm. (Res., 2610 North Alabama St.), Indianapolis, Ind.. | Jun. Dec. 16, 1929 |
| WEST, Paul Hubert. | 1719 Eighteenth St., N. W., Washington, D. C. | Jun. Nov. 11, 1929 |
| WHEELER, Herbert Austin. | 1489 West Washington Boulevard, Los Angeles, Calif. | Jun. June 10, 1929 |
| WHITTAKER, Howard James. | Asst. Engr., Essex County Park Comm., Newark (Res., 219 Berkeley Ave., Bloomfield), N. J. | Jun. Dec. 16, 1929 |
| WIGGLESWORTH, Thomas Hudson. | 800 Eighteenth St. N. W., Washington, D. C. | Jun. Oct. 14, 1929 |
| WILDS, Howard Ferdinand. | Res. Engr., The Coca-Cola Co., Box 1734, Atlanta, Ga. | Assoc. M. Oct. 14, 1929 |
| WOOD, Lucian Fox. | 7 East Poplar Ave., San Mateo, Calif. | Jun. Dec. 16, 1929 |

Reinstatements

| MEMBERS | Date of Reinstatement. |
|-------------------------------------|------------------------|
| BUELL, William Elijah, Jr. | Dec. 4, 1929 |
| ASSOCIATE MEMBERS | |
| ALLARDICE, Elliott Ritchie Barclay. | Dec. 16, 1929 |
| BOTHUM, George Gilbert. | Dec. 31, 1929 |
| MCLAREN, Eric James Roland. | Dec. 28, 1929 |
| SHOUP, Stephen Elliott. | Dec. 16, 1929 |

Resignations

| MEMBERS | Date of Resignation. |
|----------------------------|----------------------|
| BLINN, Ray Sharp. | Dec. 31, 1929 |
| CARVEN, Christopher James. | Dec. 31, 1929 |
| CRUMP, Ralph Lee. | Dec. 9, 1929 |

MEMBERS—(Continued)

| | Date of Resignation. |
|----------------------------|-------------------------|
| GREENFIELD, Robert Arthur. | Dec. 9, 1929 |
| HENRY, George Jackson. | Dec. 31, 1929 |
| JOY, Frederick Merrick. | Dec. 31, 1929 |
| LEPPER, Fred William. | Dec. 31, 1929 |
| MCCANDLISS, Edgar Scott. | Dec. 5, 1929 |
| MARSH, Charles Fleming. | Dec. 31, 1929 |
| PAUL, Charles Edward. | Dec. 31, 1929 |
| SAYERS, Edward Lawrence. | Dec. 31, 1929 |
| SLOCUMB, Edward Clyde. | Dec. 12, 1929 |
| SOUDER, Harrison. | Dec. 31, 1929 |
| STEELE, Henderson Wolfred. | Jan. 6, 1930 |
| WELLS, George Henry. | Dec. 31, 1929 |

ASSOCIATE MEMBERS

| | |
|---------------------------------|---------------|
| ANDERSON, John Edward. | Dec. 31, 1929 |
| APESCHE, Ovidio Benedicto. | Dec. 13, 1929 |
| BALL, Edgar B. | Dec. 12, 1929 |
| BIXBY, William Flint. | Dec. 18, 1929 |
| BORCHGREVINK, Henrik Christian. | Dec. 31, 1929 |
| BRAUN, Walter. | Dec. 6, 1929 |
| CAMERON, Donald Eugene Ames. | Dec. 31, 1929 |
| COOKE, Norman Homer. | Dec. 18, 1929 |
| DIFFENDERFER, Claude Orville. | Dec. 31, 1929 |
| FISHACH, Leyburn Grier. | Dec. 11, 1929 |
| FLETCHER, Josiah Monk. | Dec. 31, 1929 |
| HOMAN, William MacLean. | Dec. 31, 1929 |
| KEIL, Edwin DeWitt. | Dec. 31, 1929 |
| LACAZETTE, Alfred Aquiline. | Dec. 13, 1929 |
| LEWIS, Washington Bart. | Dec. 5, 1929 |
| OGDEN, Merton Miles. | Dec. 26, 1929 |
| PALMER, George Bushnell. | Dec. 31, 1929 |
| PECKOVER, Horace Joseph. | Dec. 31, 1929 |
| PODOLOFF, Nathan. | Dec. 7, 1929 |
| QUERBACH, Earl. | Dec. 31, 1929 |
| ROYER, Donald Adrian. | Dec. 18, 1929 |
| SCACCIAFERRO, Salvator John. | Dec. 16, 1929 |
| SCOTT, Guy. | Dec. 31, 1929 |
| SNODGRASS, Robert Davis. | Dec. 31, 1929 |
| VON ROY, Fred, Jr. | Dec. 20, 1929 |
| WEST, Charles Henry. | Dec. 31, 1929 |
| WIEGNER, Chauncey J. | Dec. 31, 1929 |
| WILSON, Thomas William. | Dec. 31, 1929 |

JUNIORS

| | |
|-----------------------------|---------------|
| AJWANI, Hashu J. | Dec. 31, 1929 |
| COOKE, Martin Walter. | Dec. 18, 1929 |
| CRAIG, Robert Steiner. | Dec. 24, 1929 |
| HOELSCHER, Leonard William. | Dec. 16, 1929 |
| HOLLAND, Silvanus Miller. | Dec. 31, 1929 |
| HOLMES, Henry McCall, Jr. | Dec. 31, 1929 |
| KAZAN, James. | Dec. 23, 1929 |
| OCHSNER, Emil. | Dec. 16, 1929 |
| PATTERSON, Joseph Robert. | Dec. 16, 1929 |
| RIHL, Walter Alday. | Dec. 27, 1929 |
| WURTS, Charles Stewart, Jr. | Dec. 27, 1929 |

AFFILIATES

| | |
|-------------------------|---------------|
| FELLOWS, Frank Shepley. | Dec. 10, 1929 |
| VAN NAME, Joseph Mason. | Dec. 31, 1929 |

Deaths

| |
|--|
| AVERILL, Frank Lloyd. Elected Associate Member, January 6, 1897; Member, May 6, 1903; died December 9, 1929. |
| BARNES, Albert Fenton. Elected Member, August 9, 1920; died February 10, 1929. |
| BOND, Edward Austin. Elected Member, September 6, 1899; died December 10, 1929. |
| BOYNTON, George Herbert. Elected Member, September 3, 1884; died April 20, 1928. |
| BRENDLINGER, Peter Franklin. Elected Member, September 7, 1887; died December 16, 1929. |
| BROWN, William. Elected Member, October 3, 1911; died December 24, 1929. |
| CASE, James Francis. Elected Member, January 6, 1904; died December 14, 1929. |
| DELAVAU, Frederick Ausbert. Elected Member, January 17, 1927; date of death unknown. |
| DONALD, John Arnold. Elected Associate Member, April 3, 1922; died October 27, 1929. |
| GOTWALS, Eugene Warren. Elected Junior, October 12, 1925; Associate Member, August 27, 1928; died September 3, 1929. |
| HILL, Albert Banks. Elected Junior, February 2, 1876; Member, March 5, 1884; died January 2, 1930. |
| KROME, William Julius. Elected Member, October 3, 1911; died October 2, 1929. |
| MCARTHUR, Charles Dix. Elected Associate Member, January 17, 1916; died November 28, 1929. |

Deaths (*Continued*)

MOULTON, Guy. Elected Member, March 1, 1905; died December 3, 1929.
 SCHNEIDER, Anton. Elected Associate Member, May 4, 1898; Member, July 2, 1913; died November 28, 1929.
 THOMPSON, Gaylord. Elected Member, April 2, 1890; died August 15, 1929.
 VON UNWORTH, Hans. Elected Associate Member, May 6, 1903; Member, October 12, 1921; died August 10, 1929.
 WATHEN, Benjamin Southern. Elected Member, November 2, 1892; died December 30, 1929.
 WALKER, Boyd Freeze. Elected Associate Member, June 10, 1929; died December 16, 1929.
 YEATMAN, Morgan Edward. Elected Member, May 4, 1892; died November 17, 1929.

Total Membership of the Society, January 7, 1930

| | |
|------------------------|--------|
| Members | 5 634 |
| Associate Members..... | 6 030 |
| | |
| Corporate Members..... | 11 664 |
| Honorary Members..... | 18 |
| Juniors | 2 264 |
| Affiliates | 143 |
| Fellows | 7 |
| | |
| Total | 14 096 |